



Violent Deaths in Massachusetts: Surveillance Update 2011

Massachusetts Department of Public Health
Bureau of Health Information, Statistics, Research, and Evaluation
Injury Surveillance Program
Massachusetts Violent Death Reporting System

Violent Deaths in Massachusetts: Surveillance Update 2011

Deval L. Patrick, Governor



John W. Polanowicz, Secretary, Executive Office of Health and Human Services
Cheryl Bartlett, Commissioner, Massachusetts Department of Public Health

September 2014

This publication was supported by Grant #U17/CE001316-06 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

Acknowledgements

This report was prepared by the staff of the Injury Surveillance Program (ISP) at the Bureau of Health Information, Statistics, Research, and Evaluation (BHISRE) of the Massachusetts Department of Public Health (MDPH). Special thanks should be given to the Centers for Disease Control and Prevention (CDC) National Violent Death Reporting System (NVDRS) program team, the members of the Massachusetts Violent Death Reporting System (MAVDRS) Advisory Committee, and Jerry O'Keefe, BHISRE Bureau Director.

Injury Surveillance Program Staff:

Lauren Larochelle, Principal Investigator
Kate Chamberlin, Research Analyst
Beth Hume, Project Director
Loreta McKeown, Epidemiologist

Victoria Ozonoff, Senior Advisor
Jeanne Hathaway, Epidemiologist
Laurie Jannelli, Project Coordinator
Bridget Nestor, Administrative Assistant

Data Providers:

We would like to give special thanks to our data providers. Below is a list of those people and their respective agencies. Apologies to those that may have been inadvertently omitted:

MDPH, Registry of Vital Records and Statistics: Karin Barrett, Donna Barlow, Ann-Marie Neault, and Mary Risser

Massachusetts State Police: Michael Coleman and David Cahill from the Firearms Identification Section
Office of the Chief Medical Examiner: Henry Nields, MD and Deborah Mendoza-Lochrie

Boston Police Department: Deputy Superintendent Kevin Buckley, Gregory Long, and Eileen Griffin

MDPH, MassCHIP and technical consultant: Richard Lee

District Attorneys (2011):

Berkshire County District Attorney David F. Capeless
Bristol County District Attorney C. Samuel Sutter
Cape and Islands County District Attorney Michael O'Keefe
Essex County District Attorney Jonathan W. Blodgett
Hampden County District Attorney Mark Mastroianni
Middlesex County District Attorney Gerard T. Leone, Jr.
Norfolk County District Attorney Michael Morrisey
Northwestern District County District Attorney David E. Sullivan
Plymouth County District Attorney Timothy J. Cruz
Suffolk County District Attorney Daniel F. Conley
Worcester County District Attorney Joseph D. Early, Jr.

To obtain additional copies of this report or previous years' reports, contact:

Massachusetts Department of Public Health
Injury Surveillance Program
250 Washington Street, 6th Floor
Boston, MA 02108
(617) 624-5664

To obtain more data on injuries to Massachusetts residents, contact Beth Hume at the Injury Surveillance Program at (617) 624-5648 or online at: <http://www.mass.gov/dph/isp>

For more information on violence and injury prevention in Massachusetts, visit the websites of the MDPH Divisions of Violence Prevention and Intervention (www.mass.gov/dph/violence) and Injury Prevention and Control (www.mass.gov/dph/injury).

MAVDRS Advisory Group Members

Violent Deaths in Massachusetts 2011

We would like to acknowledge and thank those who participate in our Advisory Group. Members contribute their expertise, knowledge, and invaluable experience. The membership changes and therefore this list may include current members, past members, and those who have asked to participate in future meetings. Some recently added members may not be included here, although we would like to acknowledge their commitment. Similarly, some members may have been unable to continue their participation, thus are thanked for their past contributions.

Cathy Barber	Harvard Injury Control Research Center
Karin Barrett	MDPH- Registry of Vital Records and Statistics
Daniel Bibel	Massachusetts State Police – Commonwealth Fusion Center
Jeb Booth	Salem State College Department of Criminal Justice
Kevin Buckley	Boston Police Department
Michael Coleman	Massachusetts State Police Crime Lab, Ballistics Section
Tish Davis	MDPH- Occupational Health Surveillance Program
Dan Dooley	Boston Public Health Commission
Barry Feldman	Massachusetts Coalition for Suicide Prevention
Sue Gallagher	Tufts University
Eileen Griffin	Boston Police Department
Holly Hackman	MDPH- Injury Prevention and Control Program
Alan Holmlund	MDPH- Suicide Prevention Program
Amanda Jenkins	UMASS Memorial Forensic Toxicology Laboratory
Roberta Hurtig	The Samaritans of Boston
Dave Kosegarten	Massachusetts College of Pharmacy and Health Sciences
Patrice Melvin	Institute for Community Health, Cambridge Health Alliance
Gregory Long	Boston Police Department
Angela Nannini	MDPH- Pregnancy and Mortality
Henry Nields	Office of the Chief Medical Examiner
Stan Nyberg	MDPH- Registry of Vital Records and Statistics
Jerry O'Keefe	MDPH- Bureau of Health Information, Statistics, Research, and Evaluation
Gary Pastva	Massachusetts Department of Mental Health
Carlene Pavlos	MDPH- Bureau of Community Health and Prevention
Bob Sege	Boston Medical Center
Kimberley Springer	Office of the Chief Medical Examiner

Table of Contents

Executive Summary.....	1
Introduction.....	3
Methods.....	3
SECTION 1: OVERVIEW OF VIOLENT DEATHS.....	5
Incidents and Demographics	
Table 1.1: Type of Incidents and Victims: Number and Percent, MA 2011.....	6
Table 1.2: Violent Deaths by Intent and Demographics: Number, Percent, and Rate, MA 2011.....	7
Homicide and Suicide Trends from 2003 to 2011	
Figure 1.1: Homicide Rates by Sex, MA 2003-2011.....	8
Figure 1.2: Suicide Rates by Sex, MA 2003-2011.....	8
Figure 1.3: Homicide Age-adjusted Rates by Race/Ethnicity, MA 2003-2011.....	9
Figure 1.4: Suicide Age-adjusted Rates by Race/Ethnicity, MA 2003-2011.....	9
SECTION 2: SUICIDES.....	11
Demographics	
Table 2.1: Suicides by Demographics: Number, Percent, and Rate, MA 2011.....	12
Figure 2.1: Suicides by Age Group and Sex: Number and Rate, MA 2011.....	13
Table 2.2: Suicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2011.....	13
Figure 2.2: Suicides by Marital Status and Sex (Ages 15+): Number and Rate, MA 2011.....	14
Table 2.3: Suicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2011.....	14
Methods	
Figure 2.3: Suicide by Type of Weapon and Sex, MA 2011.....	15
Table 2.4: Suicide Method by Age Group: Number and Percent, MA 2011.....	15
Locality	
Table 2.5: Suicides by County of Injury: Number, Percent, and Rate, MA 2011.....	16
Figure 2.4: MAP: Suicides by County: Number, MA 2011.....	17
Figure 2.5: MAP: Suicides by County: Rate, MA 2011.....	17
Table 2.6: Suicides by City/Town of Injury: Number, Percent, and Rate, MA 2011.....	18
Table 2.7: Places Where Suicide Occur: Number and Percent, MA 2011.....	19
Circumstances	
Table 2.8: Circumstances of Suicides: Number and Percent, MA 2011.....	20
Figure 2.6: Circumstance Associated with Suicide in MA by Age Group, 2011.....	21
Figure 2.7: Commonly Mentioned Circumstances of Suicides by Sex, MA 2011.....	21
Toxicology	
Figure 2.8: Percentage of Suicide Victims by Toxicology Tests and Results, MA 2011.....	22
Table 2.9: Blood Alcohol Concentration of Suicide Victims that Tested Positive by Age Group: Number and Percent, MA 2011.....	22
SECTION 3: HOMICIDES.....	23
Demographics	
Table 3.1: Homicides by Demographics: Number, Percent, and Rate, MA 2011.....	24
Figure 3.1: Homicides by Age Group and Sex: Number and Rate, MA 2011.....	25
Table 3.2: Homicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2011.....	25

Table of Contents continued

Figure 3.2:	Homicides by Marital Status and Sex (Ages 15+): Number and Rate, MA 2011	26
Table 3.3:	Homicides (Ages 25+) by Level of Education and Sex: Number, Percent, and Total Rate, MA 2011	26
Methods		
Figure 3.3:	Homicides by Type of Weapon and Sex, MA 2011	27
Table 3.4:	Homicide Weapons by Age Group: Number and Percent, MA 2011	28
Table 3.5:	Type of Firearm Used in Homicides: Number and Percent, MA 2011	28
Locality		
Table 3.6:	Homicides by County of Injury: Number, Percent, and Rate, MA 2011	29
Figure 3.4:	MAP: Homicides by County: Number, MA 2011	30
Figure 3.5:	MAP: Homicides by County: Rate, MA 2011	30
Table 3.7:	Homicides by City/Town: Number, Percent, and Rate, MA 2011	31
Table 3.8:	Places Where Homicides Occur: Number and Percent, MA 2011	32
Circumstances		
Table 3.9:	Circumstances of Homicide: Number and Percent, MA 2011	33
Table 3.10:	Homicide Circumstances by Age Group: Number and Percent, MA 2011	34
Figure 3.6:	Commonly Mentioned Homicide Circumstances by Sex, MA 2011	35
Suspect Information		
Table 3.11:	Suspects of Homicides: Number and Percent, and Suspect Demographics, MA 2011	36
Toxicology		
Figure 3.7:	Percentage of Homicide Victims by Toxicology Tests and Results, MA 2011	37
Table 3.12:	Blood Alcohol Concentration of Homicide Victims that Tested Positive by Age Group: Number and Percent, MA 2011	37
SECTION 4: DEATHS OF UNDETERMINED INTENT		39
Demographics		
Table 4.1:	Deaths of Undetermined Intent by Demographics: Number, Percent, and Rate, MA 2011	40
Figure 4.1:	Deaths of Undetermined Intent by Age Group and Sex: Number and Rate, MA 2011	41
Methods		
Figure 4.2:	Deaths of Undetermined Intent by Type of Weapon and Sex, MA 2011	42
Toxicology		
Figure 4.3:	Percentage of Undetermined Intent Victims by Toxicology Tests and Results, MA 2011	43
APPENDIX A: TECHNICAL NOTES		45
Case Identification		46
Deaths of Undetermined Intent		46
Veteran Status		46
Weapon Analysis		46
Calculating Rates		47
Age-adjusted Rates		47
Educational and Marital Status rates		47
City/Town Rates		47
U.S. Injury Rates and U.S. Population Rates		47
Annual Estimates of the Population for Counties of Massachusetts, 2011		47
Data Elements and Sources		48

Table of Contents continued

Primacy among Data Sources	48
Circumstances	49
Homicide	49
Suicide/Undetermined	49
Unintentional Firearm.....	49
Glossary	50
Weapons	52
APPENDIX B: VIOLENT DEATH AGE-ADJUSTED RATES	53
All Violent Deaths	
Table 1: Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate and Age-adjusted Rate, MA 2011	54
Table 2: Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	55
Table 3: Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	55
Suicides	
Table 4: Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	56
Table 5: Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	57
Table 6: Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	57
Homicides	
Table 7: Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011	58
Table 8: Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	59
Table 9: Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	59
Deaths of Undetermined Intent	
Table 10: Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011	60
Table 11: Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011	61
Table 12: Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011.....	61

Executive Summary

Violent Deaths in Massachusetts, 2011 Injury Surveillance Program, Massachusetts Department of Public Health

Case Definition

For inclusion in the Massachusetts Violent Death Reporting System (MAVDRS), a violent death is generally defined as a death which resulted from the intentional use of physical force or power against oneself, another person or persons. MAVDRS includes violent deaths resulting from suicide, homicide, legal intervention (excluding execution), undetermined intent, and all firearm-related deaths, regardless of intent. Final inclusion in the system is determined by ICD-10 code. All participating NVDRS states use the same data inclusion standards and variable definitions established by the CDC.

Occurrent Deaths

MAVDRS collects data on all violent deaths occurring in Massachusetts. In 2011, there were 39 victims who died in Massachusetts who were residents of other states or countries. There were 12 victims who were injured in another state or country, but were brought to Massachusetts where they later died. These two groups are included in the MAVDRS database as they are occurrent deaths (deaths occurring in Massachusetts). However, there were 38 Massachusetts residents who died from a violent death in another state and are not included in the MAVDRS database but may be captured by another NVDRS-funded state. Some of those victims may have been injured in Massachusetts, but were brought to a neighboring state due to the closer proximity of a hospital where they later died.

Summary of Findings

Overview of Violent Deaths

In 2011, 912 violent deaths occurred in Massachusetts as a result of 886 separate incidents. Ninety-eight percent of incidents consisted of only one death (N=866). The remaining 20 incidents involved more than one violent death in multiple victim incidents (multiple homicides or suicides) or combined homicide/suicide incidents.

On average, 18 violent deaths a week occurred in the Commonwealth. The violent death rate was 13.8/100,000. Of the 912 violent deaths in 2011, 65% (N=588) were suicides, 22% (N=202) were homicides, and 13% (N=114) were deaths of undetermined intent. Suicides (N=588, 8.9/100,000) were approximately three times more frequent than homicides (N=202, 3.1/100,000). The age group with the highest violent death rate was ages 45-54 (21.4/100,000). Among race/ethnicity groups, Black, non-Hispanics had the highest age-adjusted rate overall (17.9/100,000) compared to the range of 6.4/100,000 to 12.7/100,000 for all other groups.

Suicides

In 2011, there were 588 suicides or approximately 11 suicides per week. The suicide rate for males (13.8/100,000) was over three times higher than that of females (4.3/100,000). Among all age groups, suicide rates were highest among the age group of 45-54 year olds (15.4/100,000).

The most common suicide method was hanging/strangulation/suffocation which accounted for 46% (N=273) of all suicides. The most common circumstance among suicides was having a current mental health problem (N=300, 51%), which includes victims who have been diagnosed by a health professional as having a psychiatric condition and victims who were prescribed antidepressants or other psychiatric medication.

Executive Summary continued

Homicides

In 2011, there were 202 homicides or approximately four homicides per week. Youth ages 15-24 had the highest homicide number (N=79) and rate (8.4/100,000), which was 2.7 times higher than the statewide rate of 3.1/100,000. The weapon used in approximately 63% (N=127) of homicides was a firearm(s). There were 50 homicides (25%) that were precipitated by an argument, abuse, or conflict and 47 (23%) that were precipitated by another crime; such as a drug trade-related crime, robbery, burglary, rape/sexual assault, assault/homicide or witness intimidation/elimination.

Deaths of Undetermined Intent

In 2011, there were 114 deaths of undetermined intent accounting for approximately 13% of all violent deaths. Of these 114 deaths, 32% (N=36) were due to poisonings/drug overdoses.¹

An important change occurred in 2005 affecting the number of deaths of undetermined intent in Massachusetts. Most injury deaths are referred to the Commonwealth of Massachusetts Office of the Chief Medical Examiner (OCME) for determination of cause and intent. In May 2005, a change in the OCME policy affected the assignment of manner/intent of many poisoning (drug overdose) deaths. Up to that point poisoning deaths, where there was no explicit evidence that the case was a suicide or homicide, were assigned a manner of "could not be determined." With the new policy these deaths are assigned a manner of accident/unintentional. Because MAVDRS does not collect information on accidental/unintentional deaths, these poisoning deaths are no longer included in data presented in these reports. This change caused the total number of violent deaths and the number of undetermined deaths for 2005 and forward to be substantially less than in previous years. The current policy is similar to how these deaths are classified in other states. Because of this, caution should be used when comparing 2011 MAVDRS data to data from 2003 and 2004.

To demonstrate, in 2004 there were 1,243 violent deaths with 50% (N=625) classified as undetermined intent. Of those undetermined intent deaths, 90% (N=560) were due to poisoning/drug overdoses. As mentioned above, in 2011, of the 912 violent deaths, only 13% (N=114) were classified as deaths of undetermined intent.

Legal Intervention Deaths

In 2011, there were six legal intervention deaths included in the Massachusetts Violent Death Reporting System.

Unintentional Firearm Deaths

There were two unintentional firearm deaths in 2011.

¹ For more information regarding unintentional poisonings, please check the Injury Surveillance Program website, www.mass.gov/dph/isp or contact Beth Hume at (617) 624-5648 or via email at beth.hume@state.ma.us.

Introduction

Violent death represents a serious but preventable public health problem. The U.S. Centers for Disease Control and Prevention (CDC) introduced the National Violent Death Reporting System (NVDRS) in 2001 in order to improve the surveillance of violent deaths nationwide.¹ A violent death results from the intentional use of physical force or power against oneself, another person, or a group or community. Violent deaths include suicides, homicides, deaths due to legal intervention (excluding executions), deaths of undetermined intent, and firearm-related deaths, regardless of intent. Violent deaths are classified as undetermined when the Medical Examiner does not have enough information to make a determination of how the individual died: whether a death was unintentional, deliberately self-inflicted, or caused by an assault. While not enough is known about these deaths to definitively establish intent, they are included in NVDRS because useful information regarding the circumstances of the death may be available.

Currently operating in 18 states, NVDRS is a state-based surveillance system that compiles information on violent deaths in order to provide a detailed picture of how and why they occur. In Massachusetts, the Violent Death Reporting System is part of the Injury Surveillance Program within the Massachusetts Department of Public Health (MDPH). NVDRS utilizes multiple data sources, including death certificates, medical examiner files, and law enforcement records in creating its data records. The NVDRS is an incident-based surveillance system, enabling identification of multiple deaths from the same incident, as well as linking suspects associated with the incident. Decisions about whether two or more deaths belong to the same incident are determined by the timing of the injuries, rather than the timing of the deaths, and are based on a 24 hour rule and source documents indicating a clear link between the deaths.

Detailed information from multiple sources enhances the ability of researchers, prevention specialists and policymakers to develop a better understanding of when, where, why and how violent deaths occur, as well as who is at risk. Information about the circumstances associated with violent death is a particularly unique and important feature of NVDRS, since it may help in identifying specific risk factors precipitating violence. The goal of NVDRS is to provide the information needed to reduce and to prevent violent death.

OBJECTIVES

With approximately 50,000 suicides and homicides taking place in the United States each year, the need for a national violent death surveillance system emerged as a significant public health issue in the late 1990s. Until recently, there was no comprehensive, incident-based public health surveillance system to collect information on these deaths and apply it to prevention efforts. With funding from the CDC, the Massachusetts Department of Public Health began collecting detailed information on violent deaths as part of NVDRS in 2003. This report summarizes results from the ninth year of data collection in Massachusetts. In Massachusetts, we call this system MAVDRS: Massachusetts Violent Death Reporting System.

Methods

Descriptive Statistics

In this report, information on violent deaths is summarized by counts, percentages, and rates. Simple counts represent the most basic measure of violent deaths and are important for quantifying the problem, while percentages offer a way of showing distributions in the underlying population relative to a factor of interest, such as age or gender. Due to rounding, some percentages may not total to 100%. Rates add an additional level of detail by taking account of the size of the underlying population and facilitating comparisons between groups. Crude rates are presented throughout this report, unless otherwise noted, and are useful for developing community-level prevention strategies. Age-adjusted rates are provided in Appendix B to facilitate comparisons between communities or states which may have a widely disparate age distribution in the population. Death rates are expressed as the number of deaths per 100,000 population. Refer to the Technical Notes section of Appendix A for detailed information on

¹ Additional information on NVDRS can be found at <http://www.cdc.gov/ViolencePrevention/NVDRS/index.html>

Introduction continued

population estimates used for calculating rates. Rates were calculated for specific demographic groups (i.e., age, gender, marital status, race/ethnicity, and level of education), as well as by county and city level. More extensive analysis of MAVDRS variables will be conducted as additional data years become available.

Case Identification, Definition, and Data Sources

Violent death cases in the MAVDRS database are identified by the manner of death on death certificates. A record is created in the MAVDRS database for any death categorized as suicide, homicide, could not be determined, or accidental firearm-related. However, for the analysis of violent deaths in this report, a case definition is determined by the ICD-10 (International Classification of Diseases, Tenth Revision) code for the underlying cause of death, which includes suicides, homicides, deaths of undetermined intent, unintentional firearm-related deaths, as well as deaths due to legal intervention (excluding legal executions). The ICD-10 codes used for case inclusion in this report can be found in the Technical Notes section of Appendix A.

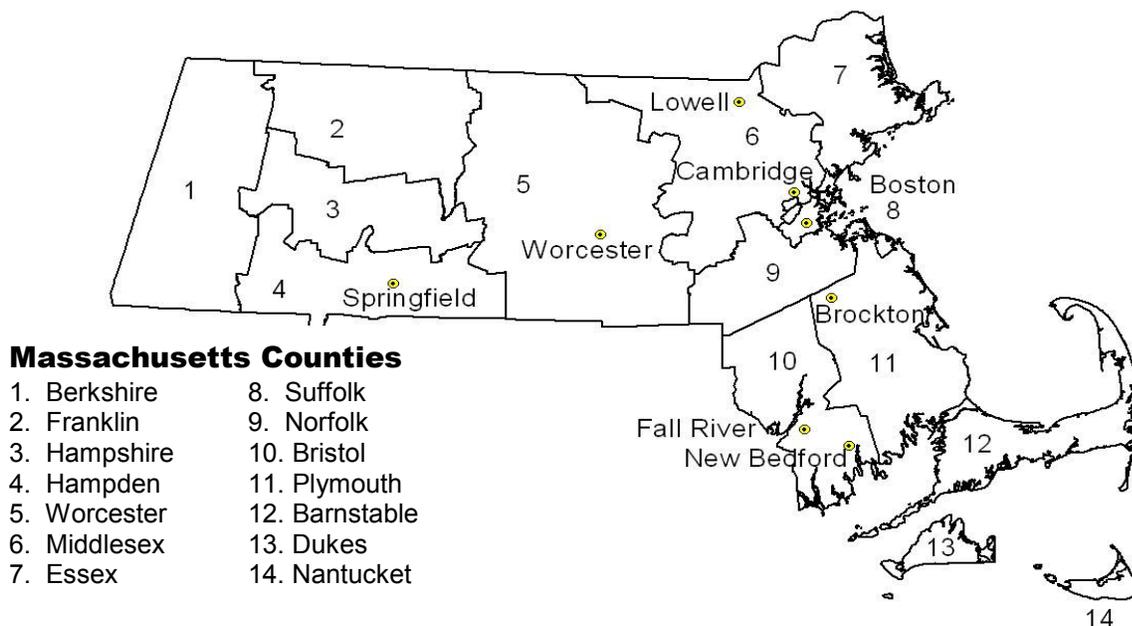
For each record, additional information is subsequently added from law enforcement and medical examiner sources. Law enforcement documents include police reports and ballistic reports from the Boston Police Department and the MA State Police Department. In addition, information from Supplemental Homicide Reports (SHR) and National Incident Based Reporting System (NIBRS) are obtained from the MA State Police Crime Reporting Unit (CRU). The Office of the Chief Medical Examiner provides autopsy reports, toxicology results, hospital records, and Emergency Medical Services (EMS) records. Additional supplemental sources are included where appropriate.

Over 270 data elements may be collected for each incident in the database, including information on the following when applicable: incident type (single suicide, multiple homicide, etc), toxicology of the victim, weapon(s) used, circumstances associated with the death (crime-related, mental health history, etc), and relationship between the suspect and victim.

The ICD-10-coded death file, maintained by MAVDRS, is used to establish the final database for all cases meeting the NVDRS case definition.

MAVDRS collects detailed information regarding the location of where the fatal injury occurred: the place (such as home, street, etc), the street address, city, county, and state. MAVDRS also collects data on place of death (such as emergency room, home, etc), but not the city where the actual death occurred. **For purposes of this report, all tables, figures, and bullets that mentions any location or place of death, refers to the location where the fatal injury occurred.**

LOCATION OF COUNTIES AND MAJOR CITIES IN MASSACHUSETTS



Overview of Violent Deaths in Massachusetts

Data Highlights for 2011:¹

- Violent deaths claimed the lives of 18 victims a week on average in Massachusetts in 2011 (N=912).
- Of the 912 violent deaths in 2011, 65% (N=588) were suicides, 22% (N=202) were homicides, and 13% (N=114) were deaths of undetermined intent.

Compared to the U.S.:²

- The Massachusetts age-adjusted rate for all violent deaths in 2011 (13.2/100,000) was lower than the U.S. age-adjusted rate (19.3/100,000) for 2010.
- The Massachusetts age-adjusted suicide rate in 2011 was 8.5/100,000 compared to the age-adjusted rate of 12.7/100,000 for the U.S in 2010.
- The Massachusetts age-adjusted rate for homicide in 2011 was 3.0/100,000, which was lower than the U.S. age-adjusted rate of 5.3/100,000 for homicides in 2010.
- The Massachusetts age-adjusted rate for deaths of undetermined intent in 2011 was 1.6/100,000 which was the same as the U.S. age-adjusted rate in 2010 (1.6/100,000).

Trends in Violent Death, 2003-2011:

- The number of homicides fluctuated between 140 and 202 from 2003 to 2011. The rate during these eight years ranged from 2.2/100,000 (in 2003) to 3.1/100,000 (in 2011).
- The number of suicides ranged from 424 in 2003 to 600 in 2010 (with 588, 8.9/100,000 in 2011). Over the nine year period, rates ranged from 6.6/100,000 to 9.2/100,000. From 2003 to 2011 there was an average annual increase of 4.3 percent per year.

¹ The classification change at the office of the Chief Medical Examiner (OCME) in 2005 affected the number of undetermined intent deaths in Massachusetts: they were substantially less than in previous years. In 2011, the number of deaths of undetermined intent was 114, only 13% of the total. Comparatively, in 2004, the number of deaths of undetermined intent was 625, which was 50% of the total number of violent deaths.

² U.S. age-adjusted data for 2011 was not available when queried for publication and use in this report, therefore, 2010 U.S. numbers were used. U.S. Data taken from <http://www.cdc.gov/injury/wisqars/fatal.html>. See Appendix A: Technical Notes for more information.

2011 MAVDRS INCIDENTS AND VICTIMS

Table 1.1: Type of Incidents and Victims: Number and Percent, MA 2011				
	Incidents		Victims	
Intent	N	%	N	%
Suicides				
Single victim suicide	583	65.8	583	63.9
Multiple victim suicide	1	0.1	2	0.2
Homicides				
Single victim homicide	163	18.4	163	17.9
Multiple victim homicide	15	1.7	34	3.7
Undetermined intent deaths				
Single victim undetermined intent death	112	12.6	112	12.3
Multiple victim undetermined intent death	1	0.1	2	0.2
Legal intervention				
Single victim legal intervention death	6	0.7	6	0.7
Combined intent				
Homicide/suicide	3	0.3	8	0.9
Unintentional firearm deaths				
Single victim unintentional firearm deaths	2	0.2	2	0.2
Total	886	100.0	912	100.0

In 2011, a total of 886 incidents in the MAVDRS database accounted for 912 violent deaths.

- 98% of incidents consisted of only one death (N=866).
- Twenty incidents resulted in the death of more than one person (e.g. homicide/suicide, multiple victim homicide, etc.) for a total of 46 victims.
- Multiple victim incidents included the following:
 - Fifteen multiple victim homicide incidents (one or more persons kills two or more people in the same incident) which resulted in the death of 34 people.
 - Three incidents where one person killed one or more persons, then killed him/herself in the same incident (homicide/suicide incident) which accounted for 8 deaths.
 - One multiple victim suicide incident (two or more suicides planned together or the deaths were planned to coincide) which resulted in the deaths of two people.
 - One multiple victim incident of undetermined intent deaths, which accounted for two deaths.
- There were two unintentional firearm deaths.
- There were six legal intervention deaths.

DEMOGRAPHICS OF VIOLENT DEATHS

Table 1.2: Violent Deaths by Intent and Demographics: Number, Percent, and Rate, MA 2011			
	N	Percent	Rate per 100,000¹
Intent			
Suicide	588	64.5	8.9
Homicide	202	22.1	3.1
Undetermined	114	12.5	1.7
Unintentional firearm	2	0.2	--
Legal intervention	6	0.7	0.1
Sex			
Male	681	74.7	21.4
Female	231	25.3	6.8
Race/Ethnicity			
White, non-Hispanic	689	75.5	13.5
Black, non-Hispanic	89	9.8	19.7
Asian, non-Hispanic	23	2.5	6.0
Hispanic	88	9.6	13.5
Other/mixed ²	23	2.5	--
Age Group			
0-14	11	1.2	1.0
15-24	168	18.4	18.0
25-34	134	14.7	15.4
35-44	153	16.8	17.7
45-54	216	23.7	21.4
55-64	144	15.8	17.2
65-74	43	4.7	9.1
75-84	28	3.1	9.4
85+	14	1.5	9.3
Unknown	1	0.1	--
Total	912	100.0	13.8

ADDITIONAL FINDINGS FOR 2011:

- The youngest victim was five months old and the oldest was 94 years old. The mean age of all victims was 43.1 years and the median age was 44.0 years.
- Seventeen victims of a violent death were homeless.
- Sixteen victims were fatally injured while in custody, such as jail, state institution, foster care or injured prior to arrest.³
- There were 71 war veterans⁴ who died a violent death.
- Twenty-five victims died of a violent death at their place of work.

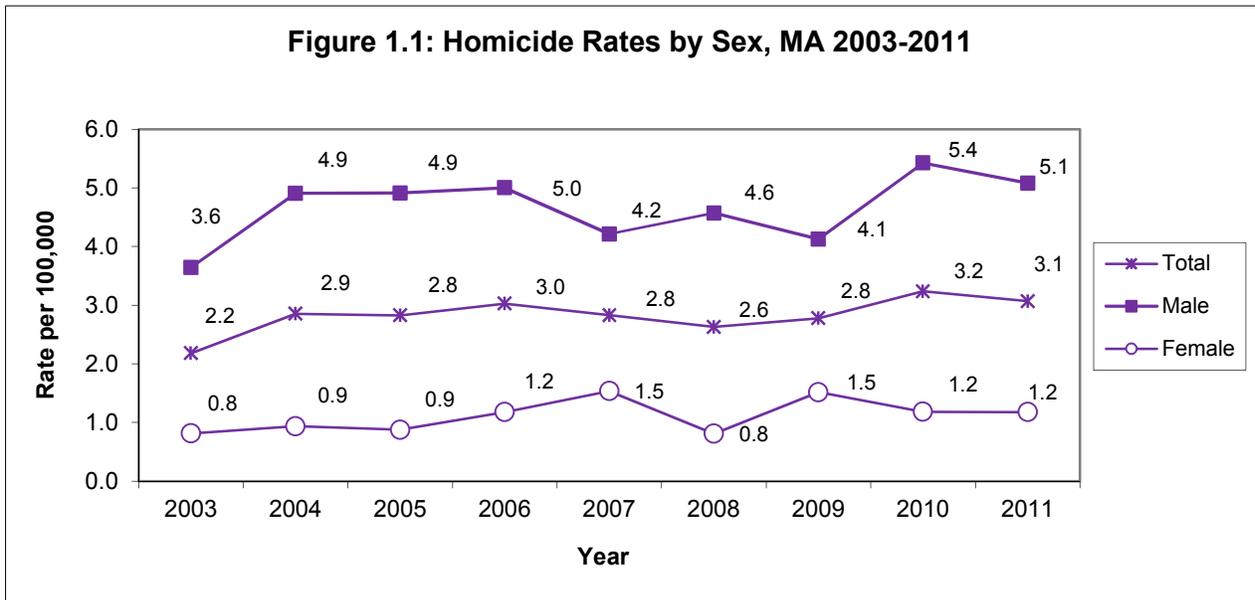
¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. Rates are crude rates unless otherwise noted. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

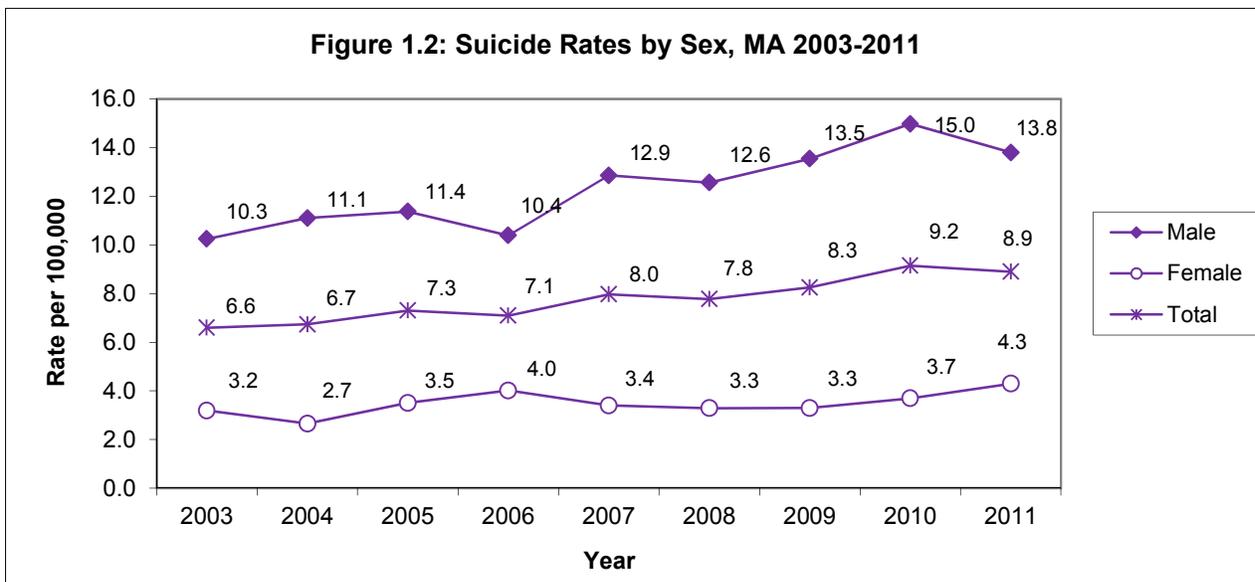
³ This 'in custody' variable is different than the question that asks the place where the victim was injured, which could be "jail, prison, detention facility." (Place of suicides can be found on page 19 (Table 2.7) and place of homicides are on page 32 (Table 3.8).)

⁴ This report only includes information where the deceased was a U.S. veteran **and** the war in which they served was specified on the death certificate.

HOMICIDE AND SUICIDE TRENDS FROM 2003 TO 2011¹



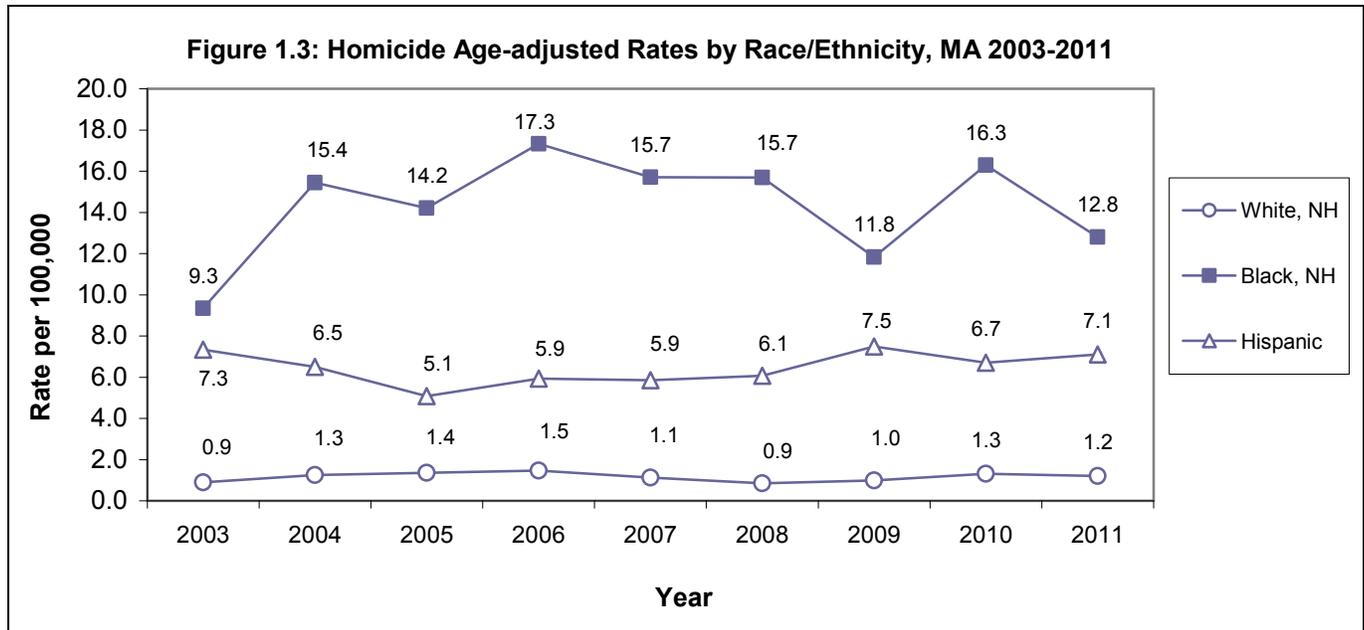
- The number of homicides fluctuated between 140 and 202 from 2003 to 2011.
- The rate during these nine years ranged from 2.2/100,000 (in 2003) to 3.2/100,000 (in 2010). The rate for 2011 was 3.1/100,000.
- Male homicide rates have been three to five times higher than female rates of homicide over the past nine years.



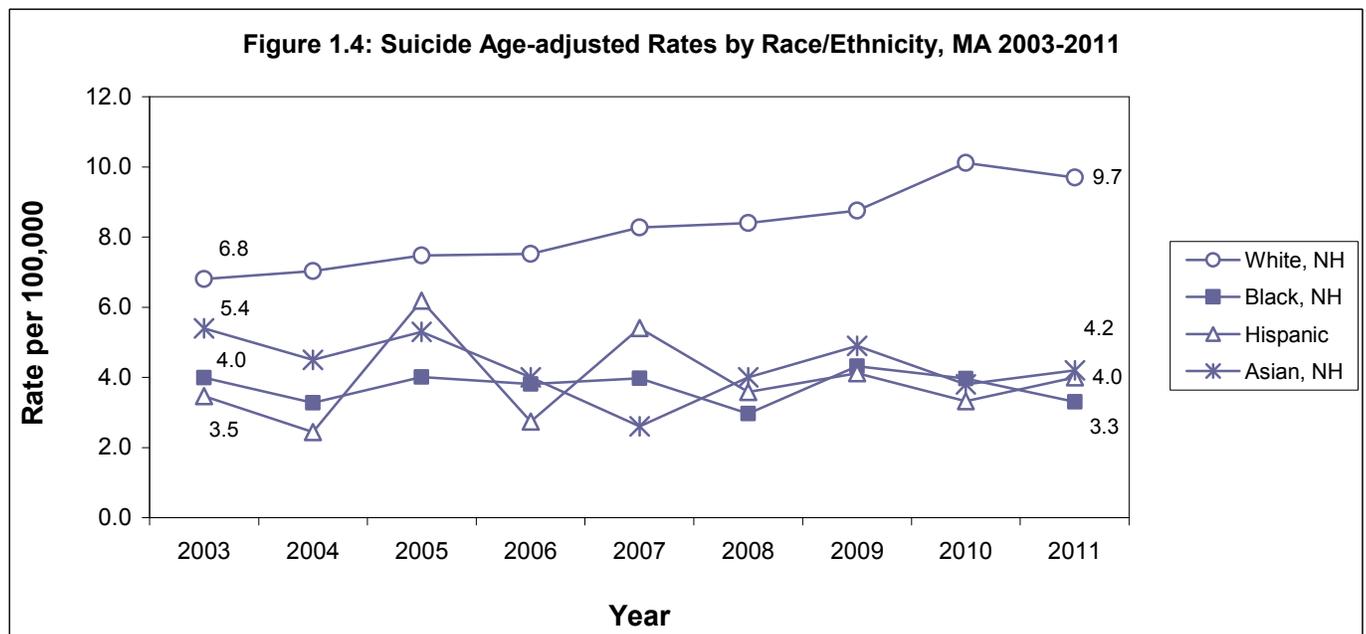
- The number of suicides ranged from 424 in 2003 to 600 in 2010. In 2011, there were 588 suicides.
- Over the nine year period, rates ranged from 6.6/100,000 (in 2003) to 9.2/100,000 (in 2010). From 2003 to 2011 there was an average annual increase of 4.3% per year.
- Male suicide rates have been three to four times higher than female rates of suicide over the past nine years. From 2003 to 2011, male suicide rates had an average annual increase of 4.4% per year.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

HOMICIDE AND SUICIDE TRENDS FROM 2003 TO 2011¹



- Homicide rates were highest for Black, non-Hispanics from 2003 to 2011.
- The second highest rates were among Hispanics. From 2005 to 2011, homicides among Hispanics increased 5.3 percent per year.



- Suicide rates were highest for White, non-Hispanics from 2003 to 2011. Rates ranged between 6.8 (in 2003) and 10.1 (in 2010) per 100,000 and in 2011 the rate was 9.7/100,000. Suicide rates among White, non-Hispanics had an average annual increase of 5.1 percent per year from 2003 to 2011.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

Suicides in Massachusetts

Data Highlights for 2011:

- An average of about 11 suicides occurred per week in 2011; more than one each day (N=588).
- Of any race/ethnicity, White, non-Hispanics had the highest suicide rate (10.3/100,000).
- The age group 45-54 had the highest rate (15.4/100,000) among all age groups.
- The suicide rate for males (13.8/100,000) was more than three times higher than the rate for females (4.3/100,000).
- Approximately 73% of suicides occurred in a home or its surrounding area (yard, driveway, and porch).

Compared to the U.S.:¹

- In 2011, Massachusetts had a lower age-adjusted rate for male suicides (13.2/100,000) than the U.S. (19.8/100,000) in 2010.
- The age-adjusted suicide rate for females in 2011 was lower in Massachusetts (4.2/100,000) than the U.S. age-adjusted rate (5.0/100,000) in 2010.
- Massachusetts had an age-adjusted rate of firearm suicides (1.6/100,000) in 2011 four times lower than the U.S. age-adjusted rate (6.1/100,000) in 2010.
- Massachusetts had a slightly higher age-adjusted rate of hanging suicides (4.0/100,000) in 2011 than the age-adjusted rate for the U.S. (3.1/100,000) in 2010.

¹ U.S. age-adjusted data for 2011 was not available when queried for publication and use in this report, therefore, 2010 U.S. numbers were used. U.S. Data taken from <http://www.cdc.gov/injury/wisqars/fatal.html>. See Appendix A: Technical Notes for more information.

SUICIDE DEMOGRAPHICS

Table 2.1: Suicides by Demographics: Number, Percent, and Rate, MA 2011			
	N	Percent	Rate per 100,000¹
Sex			
Male	441	75.0	13.8
Female	147	25.0	4.3
Race/Ethnicity			
White, non-Hispanic	523	88.9	10.3
Black, non-Hispanic	16	2.7	3.5
Asian, non-Hispanic	15	2.6	3.9
Hispanic	26	4.4	4.0
Other/mixed ² /unknown	8	1.4	--
Age Group			
0-14	5	0.9	0.4
15-24	73	12.4	7.8
25-34	81	13.8	9.3
35-44	108	18.4	12.5
45-54	155	26.4	15.4
55-64	106	18.0	12.7
65-74	31	5.3	6.5
75-84	20	3.4	6.7
85+	9	1.5	6.0
Total	588	100.0	8.9

ADDITIONAL FINDINGS FOR 2011:

- The youngest suicide victim was 11 years old and the oldest was 94 years old.
- The mean age was 45.5 years and the median age was 46. Forty-five percent of suicides were among persons aged 35 to 54 (N=263).
- Sixty war veterans³ completed suicide, which accounted for 85% of the total violent deaths among war veterans (N=71).
- Suicides in 2011 also included:
 - Nine victims that were homeless.
 - Ten victims that were in custody, such as jail, state institution, or foster care.⁴
 - Fifteen victims that died at their workplace.

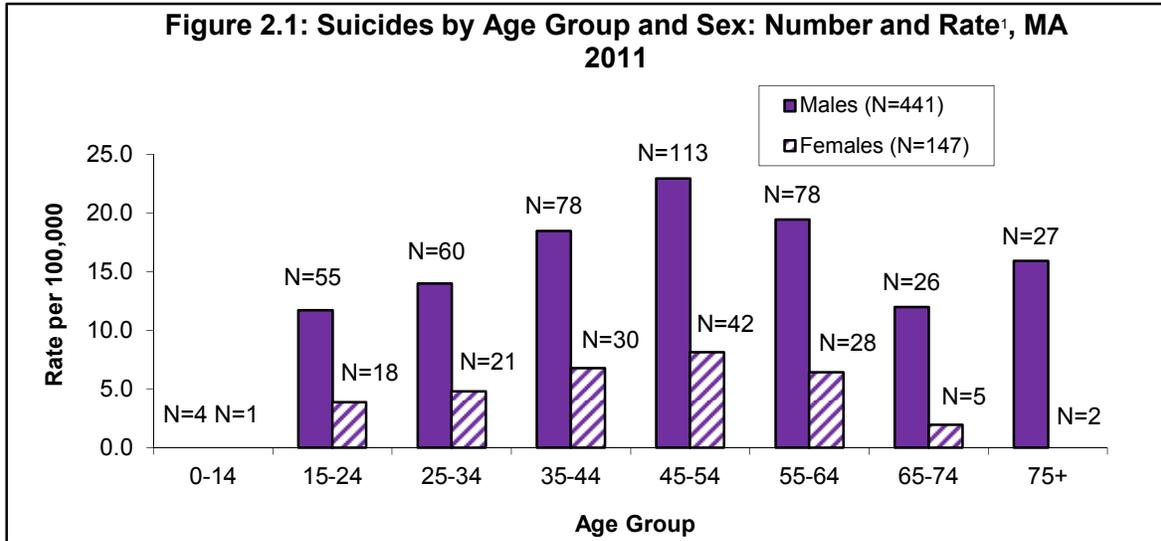
¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ This report only includes information where the deceased was a U.S. veteran *and* the war in which they served was specified.

⁴ Suicides occurring "in custody" include those mentioned on page 19 (Table 2.7: Places where suicides occur) in addition to those who are involuntarily committed to a psychiatric facility, in a foster home, and those who were injured prior to being arrested.

SUICIDE DEMOGRAPHICS



- Among persons ages 15-24, the suicide rate was 7.8/100,000 (N=73), which was lower than the statewide rate of 8.9/100,000.
- Among males, the age group 45-54 had the highest suicide rate (22.9/100,000).
- Among females, ages 45-54 had the highest suicide rate (8.1/100,000).
- Overall, male rates of suicide were more than three times higher than female rates.

Table 2.2: Suicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2011¹

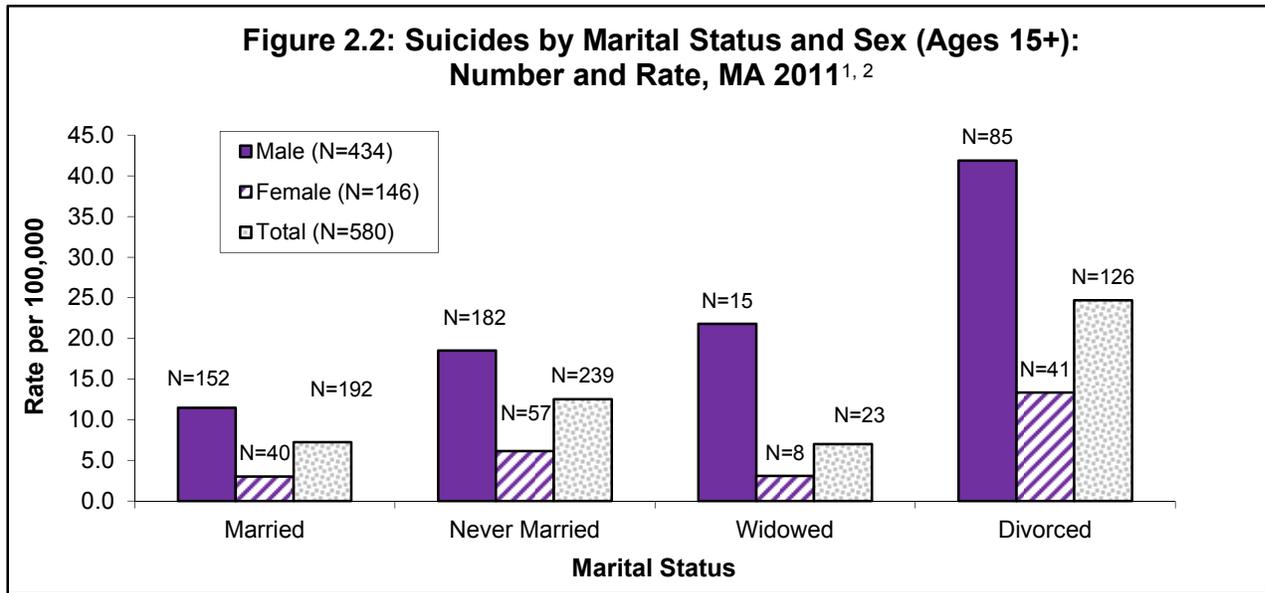
	Female			Male		
	N	Percent	Rate per 100,000	N	Percent	Rate per 100,000
White, non-Hispanic	134	91.2	5.1	389	88.2	15.8
Black, non-Hispanic	3	2.0	--	13	2.9	6.0
Asian, non-Hispanic	7	4.8	3.5	8	1.8	4.4
Hispanic	3	2.0	--	23	5.2	7.2
Other/mixed ²	0	0	--	8	1.8	--
Total	147	100.0	4.3	441	100.0	13.8

- White, non-Hispanics had the highest rates for males (15.8/100,000) and females (5.1/100,000).
- There were 588 suicides in 2011; approximately 66% were White, non-Hispanic males and 23% were White, non-Hispanic females. The Massachusetts population was comprised of 37% White, non-Hispanic males and 40% White, non-Hispanic females in 2011.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

SUICIDE DEMOGRAPHICS



- In 2011, male suicide rates were always higher than female suicide rates, regardless of marital status.
- For males, suicide rates were highest among divorced males (41.9/100,000).
- Among females, suicide rates were highest among divorced females (13.3/100,000).

**Table 2.3: Suicides (Ages 25+) by Level of Education and Sex:
Number, Percent, and Total Rate, MA 2011**

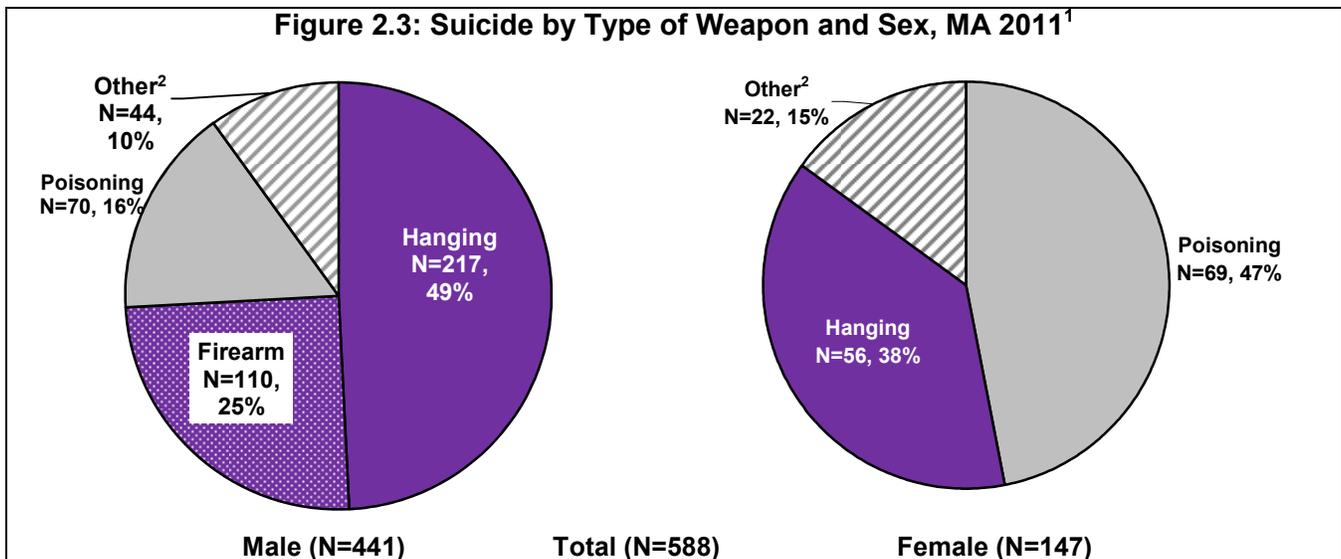
Years of Education	Female		Male		Total		Rate per 100,000 ¹
	N	%	N	%	N	%	
0-8	4	3.1	10	2.6	14	2.7	6.4
9-11	3	2.3	25	6.5	28	5.5	13.9
12	54	42.2	188	49.2	242	47.5	19.7
13-16	41	32.0	113	29.6	154	30.2	7.5
17+	25	19.5	41	10.7	66	12.9	8.9
Unknown	1	0.8	5	1.3	6	1.2	--
Total²	128	100.0	382	100.0	510	100.0	11.4

- The highest suicide rate was among victims with 12 years of education (19.7/100,000).
- Approximately 56% of suicide victims age 25 and older had 12 or less years of education, while approximately 37% of the Massachusetts population age 25 and older has had 12 years of education or less.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² There were 3 victims whose data element for marital status was "unknown" and they are excluded from the total.

METHODS OF SUICIDES¹



- In this report, “hanging/strangulation/suffocation” is simply referred to as “hanging.” This was the most common suicide method accounting for 46% (N=273) of suicides.
- Among females, poisoning/drug overdose and hanging were the most common methods (47% and 38%, respectively).
- For males, hanging was the most common method (49%). The second most common method was the use of a firearm (25%), followed by poisoning/drug overdose (16%).
- Of suicide poisoning deaths, 46% were due to the ingestion of more than one poison/drug (N=64). Of the total suicide deaths by poisoning/drug overdose (N=139) and based on the first poison listed:
 - 71% (N=98) were due to the ingestion of one or more substances including street/recreation drugs, alcohol, pharmaceutical prescriptions, over-the counter medications or unknown pharmaceuticals.
 - 9% (N=12) were due to carbon monoxide poisoning. Fifty percent (N=6) had a car as the carbon monoxide source.
 - 4% (N=5) were due to another poison, which includes substances such as anti-freeze or cyanide.

Table 2.4: Suicide Method by Age Group: Number and Percent, MA 2011

	Age Group										Total	
	0-14		15-24		25-44		45-64		65+			
Weapon	N	%	N	%	N	%	N	%	N	%	N	%
Firearm	0	0	11	15.1	29	15.3	45	17.2	28	46.7	113	19.2
Poisoning	1	20.0	7	9.6	42	22.2	79	30.3	10	16.7	139	23.6
Hanging	4	80.0	47	64.4	101	53.4	104	39.8	17	28.3	273	46.4
Other ²	0	0	8	11.0	17	9.0	33	12.6	5	8.3	63	10.7
Total	5	100.0	73	100.0	189	100.0	261	100.0	60	100.0	588	100.0

- Hanging was the most common method of suicide through age 64.
- Firearm was the most common method of suicide among persons ages 65 and over.

¹ In cases where more than one weapon type was used (including multiple poisons), only the first weapon type was selected for the analysis in this report.

² Other weapon for males includes: Drowning, fall, fire/burn, motor vehicle, other transport, sharp instrument and other weapon. Other weapon for females includes: Drowning, fall, firearm, motor vehicle, other transport, sharp instrument, and other weapon. See Appendix A for a complete list of weapons.

LOCALITY OF SUICIDES

Table 2.5: Suicides by County of Injury: Number, Percent, and Rate, MA 2011			
County	N	Percent¹	Rate per 100,000²
Population: 1,000,000+			
Middlesex	124	21.5	8.2
Population: 500,000 – 1,000,000			
Worcester	78	13.5	9.7
Essex	63	10.9	8.4
Suffolk	58	10.1	7.9
Bristol	50	8.7	9.1
Norfolk	49	8.5	7.3
Population: 100,000 – 500,000			
Plymouth	46	8.0	9.2
Hampden	37	6.4	8.0
Barnstable	33	5.7	15.3
Berkshire	18	3.1	13.8
Hampshire	13	2.3	8.2
Population: <100,000			
Franklin	4	0.7	--
Dukes	2	0.3	--
Nantucket	1	0.2	--
Other			
Outside MA ²	6	--	--
Unknown ²	6	--	--
Total known MA county	576	100.0	--
Total	588	--	8.9

- Middlesex, Worcester, and Essex Counties had the highest number of suicides (N=124, 78, and 63 respectively). These three counties accounted for 46% of total suicides in a known Massachusetts county and 47% of the Massachusetts population.
- Among counties with a population of 500,000-1,000,000, Worcester had the highest number (N=78) and rate (9.7/100,000).
- Among counties with a population of 100,000-500,000, Plymouth had the highest number (N=46) and Barnstable had the highest rate (15.3/100,000, N=33). These counties (Plymouth, Hampden, Barnstable, Berkshire, and Hampshire) accounted for 26% of suicide occurrences in a known Massachusetts county and 22% percent of the Massachusetts population.
- Numbers of suicides for some counties are low, therefore rates may be unstable. Caution should be exercised in interpretation of these rates.

¹ Percent is based on known Massachusetts county of injury (N=576). Rate was not calculated on unknown county of injury nor out of state injuries.

² Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. Rates may be much higher among counties with a small population. See Appendix B for age-adjusted rates.

LOCALITY OF SUICIDES

Figure 2.4: Suicides by County: Number, MA 2011

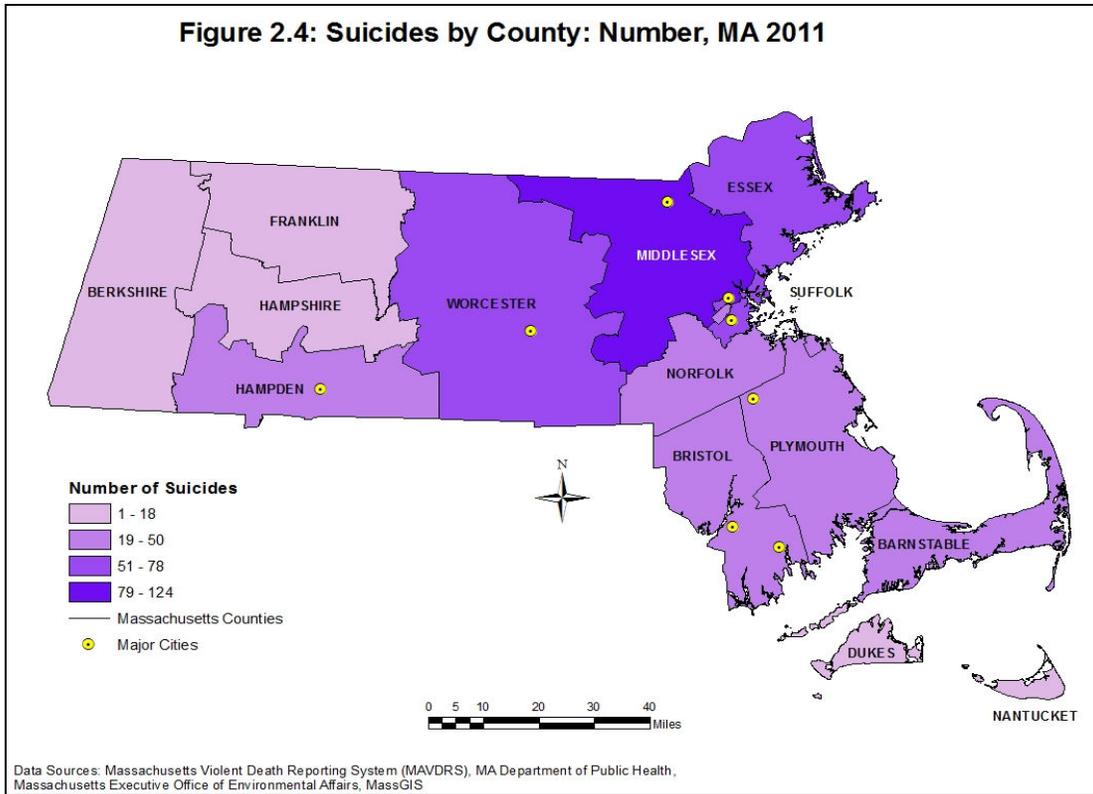
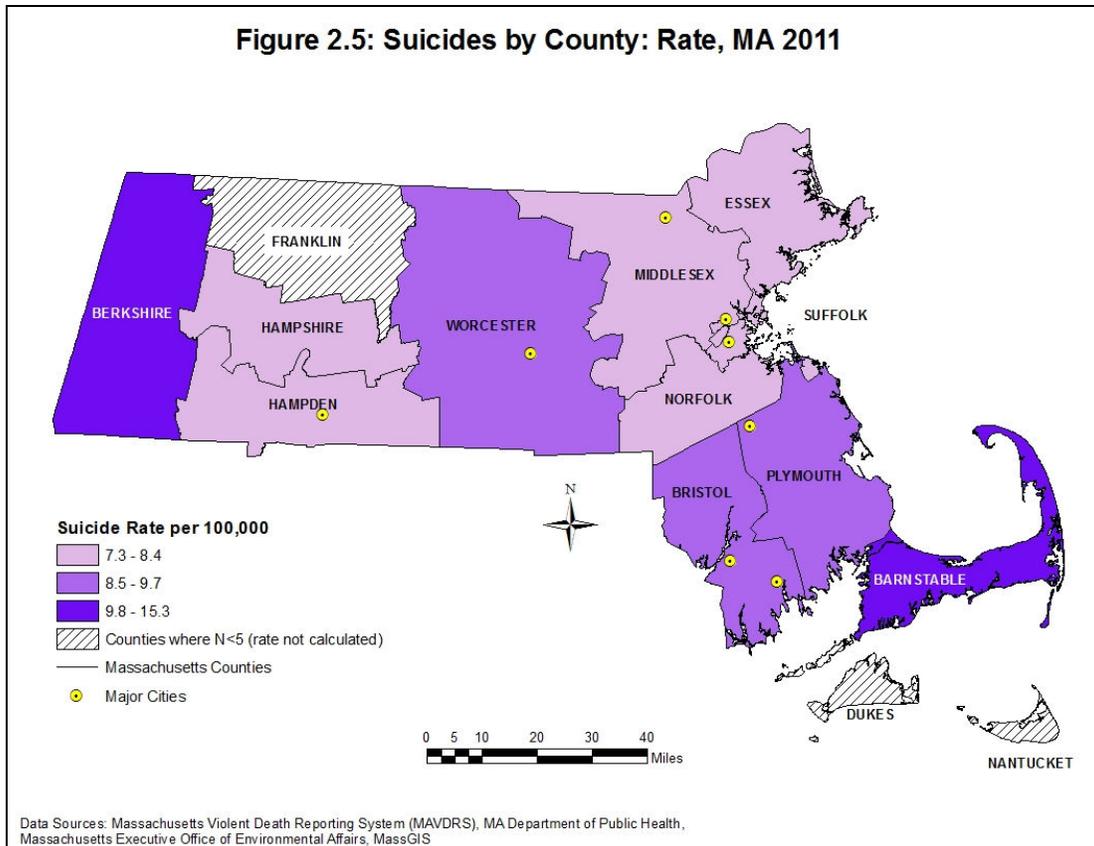


Figure 2.5: Suicides by County: Rate, MA 2011



LOCALITY OF SUICIDES

Table 2.6: Suicides by City/Town of Injury: Number, Percent, and Rate, MA 2011			
	N	Percent¹	Rate per 100,000²
Group 1: Cities/Towns over 175,000 population:			
Boston	52	9.0	8.3
Worcester	17	3.0	9.4
Total Group 1	69	12.0	8.6
Group 2: Cities/Towns 75,000-174,999 population:			
Springfield	13	2.3	8.5
Cambridge	12	2.1	11.3
New Bedford	10	1.7	10.5
Quincy	9	1.6	9.7
Brockton	8	1.4	8.5
Fall River	8	1.4	9.0
Lynn	8	1.4	8.8
Somerville	7	1.2	9.1
Lowell	6	1.0	5.6
Newton	3	0.5	--
Lawrence	2	0.3	--
Total Group 2	86	14.9	8.0
Group 3: Cities/Towns 50,000-75,000 population:			
Framingham	7	1.2	10.1
Waltham	7	1.2	11.4
Weymouth	7	1.2	12.9
Haverhill	5	0.9	8.1
Medford	5	0.9	8.8
Brookline	4	0.7	--
Chicopee	4	0.7	--
Malden	3	0.5	--
Plymouth	3	0.5	--
Revere	3	0.5	--
Taunton	3	0.5	--
Peabody	2	0.3	--
Total Group 3	53	9.2	7.6
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	368	63.9	9.2
Other			
Outside MA	5	--	--
Unknown city/town	6	--	--
Total known MA city/town	576	100.0	--
Total	588	--	8.9

- Among cities with a population of 75,000-174,999, Springfield, Cambridge, and New Bedford had the highest number of suicides (N=13, 12, 10, respectively), while Cambridge had the highest rate (11.3/100,000, N=12).
- Among cities with a population of 50,000-75,000, Weymouth had the highest rate of suicide (12.9/100,000, N=7).

¹ Percent is based on known Massachusetts city of injury (N=576). Rate was not calculated on unknown city of injury nor out of state injuries.

² Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates.

PLACE OF SUICIDES

Table 2.7: Places Where Suicides Occur: Number and Percent, MA 2011		
	N	Percent¹
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	423	72.7
Hotel/motel	23	4.0
College/University, including dormitory, residential school	9	1.5
Other commercial establishment (e.g., grocery store, retail outlet) including parking lot	7	1.2
Hospital, medical facility or nursing home/supervised residential facility	7	1.2
Transportation utilities:		
Motor vehicle (excl. school and public transportation)	28	4.8
Railroad track/Public transportation or station	13	2.2
Street/road, sidewalk, alley, highway	7	1.2
Parking lot/public parking garage	5	0.9
Outdoor and recreational areas:		
Natural area/park, playground, public use area	36	6.2
Other:		
Other	24	4.1
Total Known Place of Suicide Occurrence	582	100.0
Unknown place of Suicide	6	--
Total Suicides	588	--

Of the 582 suicides where location of injury was reported:

- The majority of suicides (73%) occurred in a house, apartment, or its surroundings (yard, porch, driveway).
- Approximately 5% of suicides occurred in a motor vehicle.
- Approximately 6% percent of suicides occurred in a natural area, such as such as woods, rivers, or a recreational area suck as a park, playground, or public use area..

¹ Percent is based on number of suicides with known place where suicide occurred (N=582).

SUICIDE CIRCUMSTANCES

The circumstances of a suicide can help in getting a better understanding of what was occurring in the decedent's life prior to the death. NVDRS allows for the endorsement of more than one circumstance for a suicide victim. It is important to note that some circumstances are more likely to be known and/or noted than others. The following table percentages are circumstances noted out of all suicides (N=588). See Appendix A for more information and definitions of circumstances.

Table 2.8: Circumstances of Suicides: Number and Percent, MA 2011		
	N	Percent
Total number of suicide victims	588	100.0
Total victims with reported circumstances	543	92.3
Health Characteristics		
Current mental health problem	300	51.0
Ever treated for mental health problem ¹	234	39.8
Current treatment for mental illness ¹	215	36.6
Alcohol problem/other substance problem	157	26.7
History of suicide attempts	126	21.4
Physical health problem ²	68	11.6
Relationship Characteristics		
Intimate partner problem	135	23.0
Other relationship problem	44	7.5
Other death of friend or family in past five years	34	5.8
Perpetrator of interpersonal violence past month	17	2.9
Suicide of friend or family in past 5 years	10	1.7
Victim of interpersonal violence past month	5	0.9
Life Stressors		
Job/Financial problem	96	16.3
Recent criminal legal problem	47	8.0
Family stressors	43	7.3
Eviction/Loss of home	25	4.3
Other legal problems	12	2.0
Anniversary of traumatic event	8	1.4
School problem	7	1.2
Event Characteristics		
Person left a suicide note	212	36.1
Current depressed mood	172	29.3
Disclosed intent to commit suicide	162	27.6
Crisis in past two weeks	72	12.2

Of the 588 suicides:

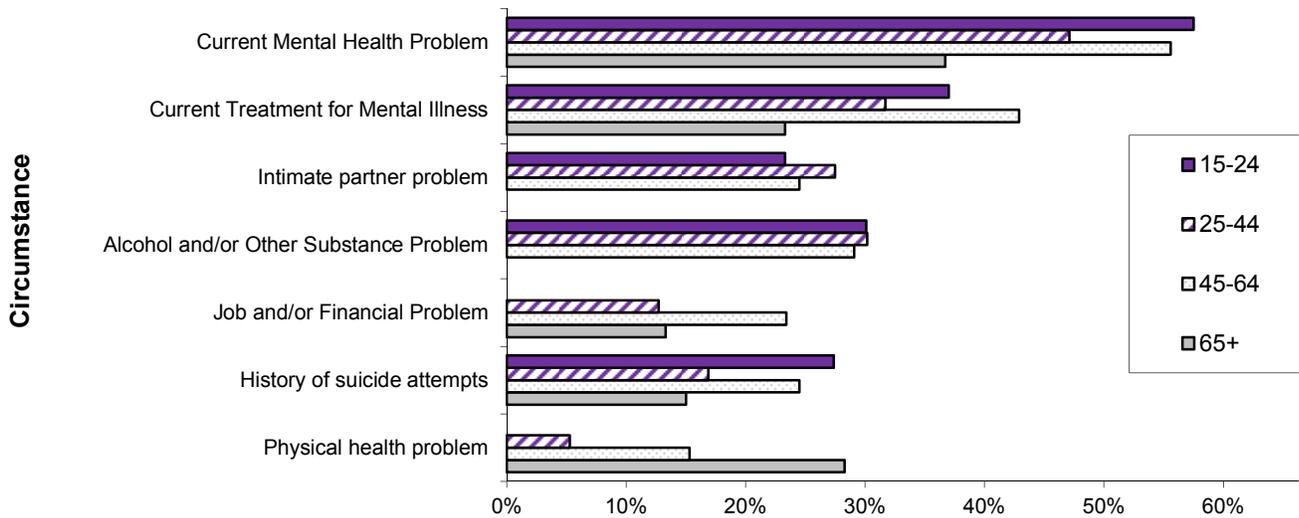
- Fifty-one percent were reported to have a current mental health problem. This is a broad category and includes victims who have been diagnosed by a health professional as having a psychiatric condition and victims who were prescribed antidepressants or other psychiatric medication.
- Twenty-nine percent were reported as being depressed by a family member or other witness. This does not necessarily indicate that there was a clinical diagnosis of depression or treatment for this condition.
- Twenty-seven percent were reported to have an alcohol or other substance problem.
- Twenty-three percent were reported to be having problems with a current or former intimate partner including divorce, jealousy, or argument.

¹ "Ever treated for mental health problem" and "current treatment for mental illness" includes treatment for mental health problems as well as alcohol/substance abuse problems.

² From 2003 to 2005, MAVDRS coded "physical health problem" if there was a serious physical health problem present, regardless if it contributed directly to the suicide or not. In 2006, we began to code this variable only if there was evidence that the problem directly contributed to the suicide or if the problem was debilitating, including situations where the victim was terminally ill, bed-ridden, oxygen dependent, or receiving daily care by a third party.

CIRCUMSTANCES

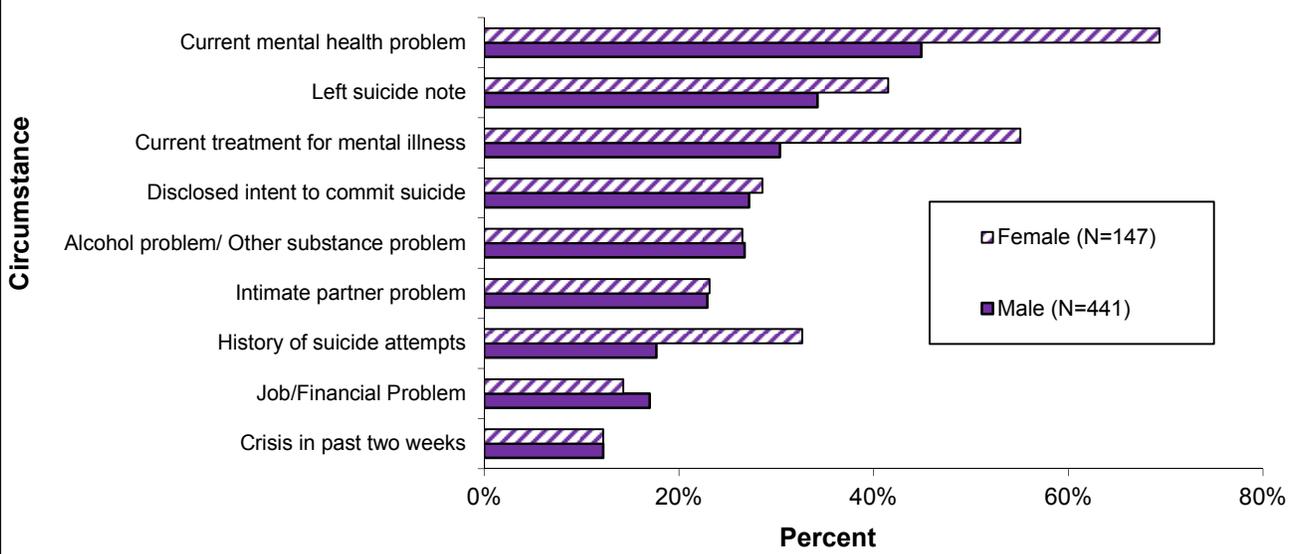
Figure 2.6. Circumstances Associated with Suicide in MA, by Age Group, 2011



Information about suicide circumstances was available for 92% (N=543) of all suicides.

- 45 to 64 year olds had the highest percent of job and/or financial problem.
- Individuals ages 65 and over had the highest percent of physical health problem compared to other age groups.

Figure 2.7: Commonly Mentioned Circumstances of Suicides by Sex, MA 2011

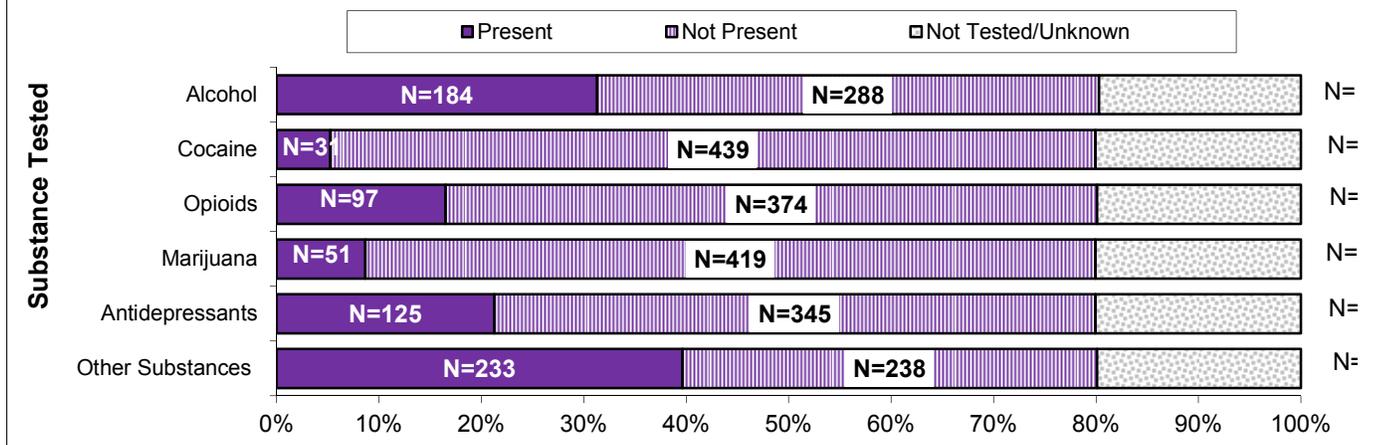


Information about suicide circumstances was available for 91% of males (N=402) and 96% of females (N=141).

- Females were more likely than males to have a current mental health problem, treatment for a mental health disorder noted, and a history of suicide attempts.
- A larger percentage of males were reported to have financial and/or job problems.

TOXICOLOGY OF SUICIDE VICTIMS

Figure 2.8: Percentage of Suicide Victims by Toxicology Tests and Results, MA 2011



- Of the 588 suicide victims in Massachusetts in 2011, approximately 80% were tested for blood alcohol concentration, cocaine, opioids, marijuana, antidepressants, and/or other substances. The above figure demonstrates the percentage of victims who tested positive and negative for those substances, as well as victims not tested for those substances or had an unknown result.
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, carbon monoxide and amphetamines.

Table 2.9: Blood Alcohol Concentration of Suicide Victims that Tested Positive by Age Group: Number and Percent, MA 2011¹

	Age Group								Total	
	< 21		21-44		45-64		65+			
BAC % ¹	N	%	N	%	N	%	N	%	N	%
0.010 – 0.040 ²	<5	--	14	17.7	28	32.9	<5	--	48	26.1
0.041 - 0.079	<5	--	15	19.0	12	14.1	<5	--	31	16.8
0.08 and over	6		50	63.3	44	51.8	<5	--	103	56.0
Unknown ³	<5	--	0	0	<5	--	0	0.0	<5	--
Total	12	100.0	79	100.0	85	100.0	8	100.0	184	100.0

- The above table only refers to those victims who were tested for blood alcohol concentration and tested positive (N=184). Eighty percent (N=472) of suicide victims were tested for blood alcohol concentration (BAC) and 39% of those had a positive BAC.
- Victims with a BAC in the 0.010 - 0.040 range comprise 26% of the total. These results must be interpreted with caution due to uncertainty of the cause of the result.²
- Among suicide victims where BAC was tested and results were positive, 75% (N=9) of victims under age 21 had a BAC of 0.041 or higher. Eighty-two percent (N=65) of victims ages 21-44 had a BAC of 0.041 or above. Among victims ages 45-64, 66% (N=56) had a BAC 0.041 and above.
- Fifty-six percent (N=103) of all suicide victims who tested positive for alcohol had a BAC of 0.08 or over, which is over the legal limit for operating a motor vehicle in Massachusetts.

¹ Caution should be used when interpreting BAC due to variation in time among ingestion of alcohol, time of death, and drawing of blood for testing which will affect the outcome of the test.

² BAC of 0.04% or less could be due to decomposition, rather than ingestion of alcohol.

³ Unknown numbers are those where the victim was tested, but the results were not available at the time of abstraction.

Homicides in Massachusetts

Data Highlights for 2011:

- Homicides claimed an average of four lives per week (N=202) in 2011.
- Black, non-Hispanics had the highest homicide rate (14.4/100,000) compared to White, non-Hispanics (1.3/100,000) and Hispanics (8.6/100,000).
- Black, non-Hispanic males had a homicide rate of 27.5/100,000 and White, non-Hispanic males had a homicide rate of 1.9/100,000.
- The homicide rate of males (5.1/100,000) was 4.3 times higher than the rate of females (1.2/100,000).
- In 2011, over half of homicides (63%) in Massachusetts involved firearms. This is similar to 2010 (62%).

Compared to the U.S.:¹

- Massachusetts had a lower age-adjusted homicide rate in 2011 (3.0/100,000) than the U.S. age-adjusted rate for homicides (5.3/100,000) in 2010.
- In 2011, Massachusetts had an age-adjusted homicide rate for males (5.0/100,000) that was 1.7 times lower than that of the U.S. age-adjusted rate (8.3/100,000) in 2010.
- The Massachusetts age-adjusted rate for female homicides in 2011 (1.1/100,000) was lower than that of the U.S. age-adjusted rate for female homicides (2.2/100,000) in 2010.
- Massachusetts had an age-adjusted rate for Black, non-Hispanic males in 2011 (24.6/100,000) that was lower than the U.S. age-adjusted rate (31.5/100,000) in 2010.

¹ U.S. age-adjusted data for 2011 was not available when queried for publication and use in this report, therefore, 2010 U.S. numbers were used. U.S. Data taken from <http://www.cdc.gov/injury/wisqars/fatal.html>. See Appendix A: Technical Notes for more information.

DEMOGRAPHICS OF HOMICIDE VICTIMS

Table 3.1: Homicides by Demographics: Number, Percent, and Rate, MA 2011			
	N	Percent	Rate per 100,000¹
Sex			
Male	162	80.2	5.1
Female	40	19.8	1.2
Race/Ethnicity			
White, non-Hispanic	66	32.7	1.3
Black, non-Hispanic	65	32.2	14.4
Asian, non-Hispanic	4	2.0	--
Hispanic	56	27.7	8.6
Other/mixed ²	11	5.4	--
Age Group			
0-14	6	3.0	0.5
15-24	79	39.1	8.4
25-34	42	20.8	4.8
35-44	25	12.4	2.9
45-54	24	11.9	2.4
55-64	15	7.4	1.8
65-74	6	3.0	1.3
75-84	2	1.0	--
85+	3	1.5	--
Total	202	100.0	3.1

ADDITIONAL FINDINGS FOR 2011:

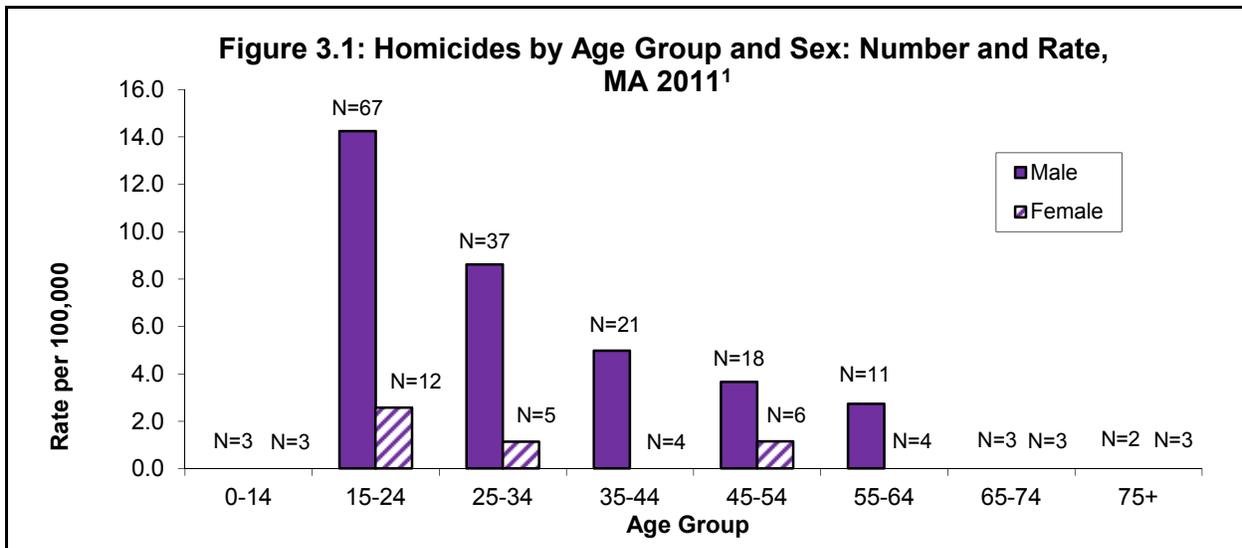
- The youngest homicide victim was 5 months old and the oldest was 91 years old. The mean age for homicide victims was 33.7 years and the median age was 29 years old.
- Forty-two percent of all homicide victims were age 24 or younger and 63% were age 34 or younger.
- There were two war veterans³ who were the victims of homicide.
- Homicides in 2011 included:
 - two victims that were homeless.
 - six victims that were injured at their workplace.
 - one homicide victim died in custody.
- Black, non-Hispanics accounted for approximately 32% of homicide victims, but make up only 7% of the Massachusetts population. Hispanics accounted for about 28% of homicide victims and make up only 10% of the Massachusetts population.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ This report only includes information where the deceased was a U.S. veteran **and** the war in which they served was specified.

DEMOGRAPHICS OF HOMICIDE VICTIMS



- The highest homicide rate by age group was among 15-24 year olds (8.4/100,000, N=79).
 - The homicide rate for ages 15-19 was 4.6/100,000 (N=21) which was 1.5 times higher than the statewide rate of 3.1/100,000.
 - The homicide rate for ages 20-24 was 12.2/100,000 (N=58) which was approximately four times higher than the statewide rate of 3.1/100,000.
 - Males ages 15-24 had the highest homicide rate (14.2/100,000, N=67) which was approximately 4.5 times higher than the statewide rate of 3.1/100,000.
- Males ages 25-34 years had the second highest homicide rate (8.6/100,000, N=37).
- For females, the highest rate was among ages 15-24 (2.6/100,000). Female age groups ranged from 1.1/100,000 to 2.6/100,000.

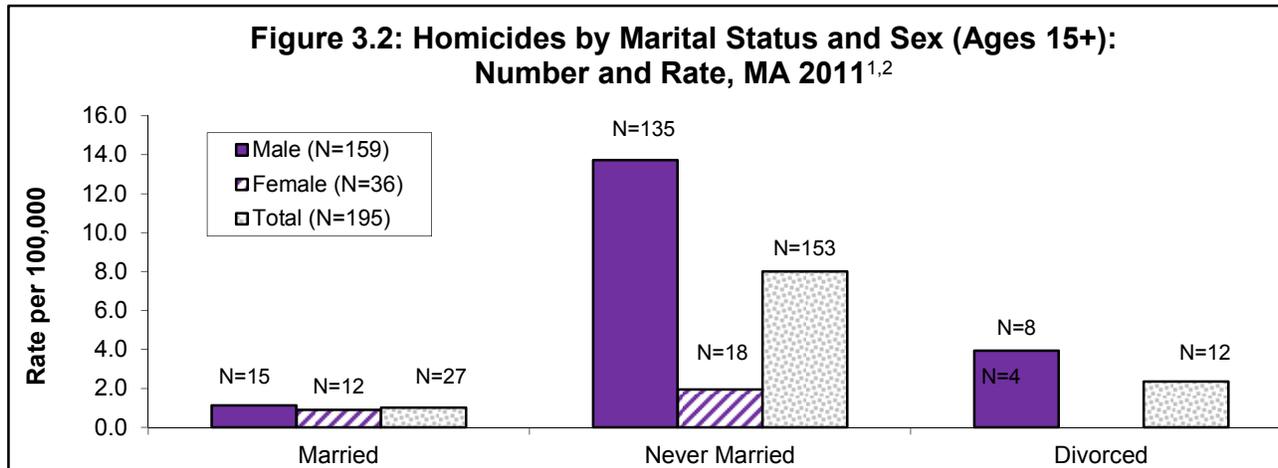
Table 3.2: Homicides by Race/Ethnicity and Sex: Number, Percent, and Rate, MA 2011						
	Female			Male		
	N	%	Rate per 100,000 ¹	N	%	Rate per 100,000 ¹
White, non-Hispanic	20	50.0	0.8	46	28.4	1.9
Black, non-Hispanic	5	12.5	2.1	60	37.0	27.5
Asian, non-Hispanic	2	5.0	--	2	1.2	--
Hispanic	12	30.0	3.6	44	27.2	13.7
Other/mixed ²	1	2.5	--	10	6.2	--
Total	40	100.0	1.2	162	100.0	5.1

- Black, non-Hispanics had the highest homicide rate for males (27.5/100,000).
- For males ages 15-24, Black, non-Hispanics had the highest rate (63.3/100,000, N=26) followed by Hispanics (40.2/100,000, N=26). White, non-Hispanic males ages 15-24 had a rate of 1.8/100,000 (N=6).

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for crude and/or age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

DEMOGRAPHICS OF HOMICIDE VICTIMS



- Homicide rates for males and females were similar for those who were married. Rates were higher among males compared to females for those who were divorced. Rates for widowed persons were not calculated due to small numbers.
- Among males, homicide rates were highest among those who were never married (13.7/100,000, N=135).
- Among females, homicide rates were higher among those who were never married compared to married females (1.9/100,000, N=18 and 0.9/100,000, N=12 respectively).

**Table 3.3: Homicides (Ages 25+) by Level of Education and Sex:
Number, Percent, and Total Rate, MA 2011**

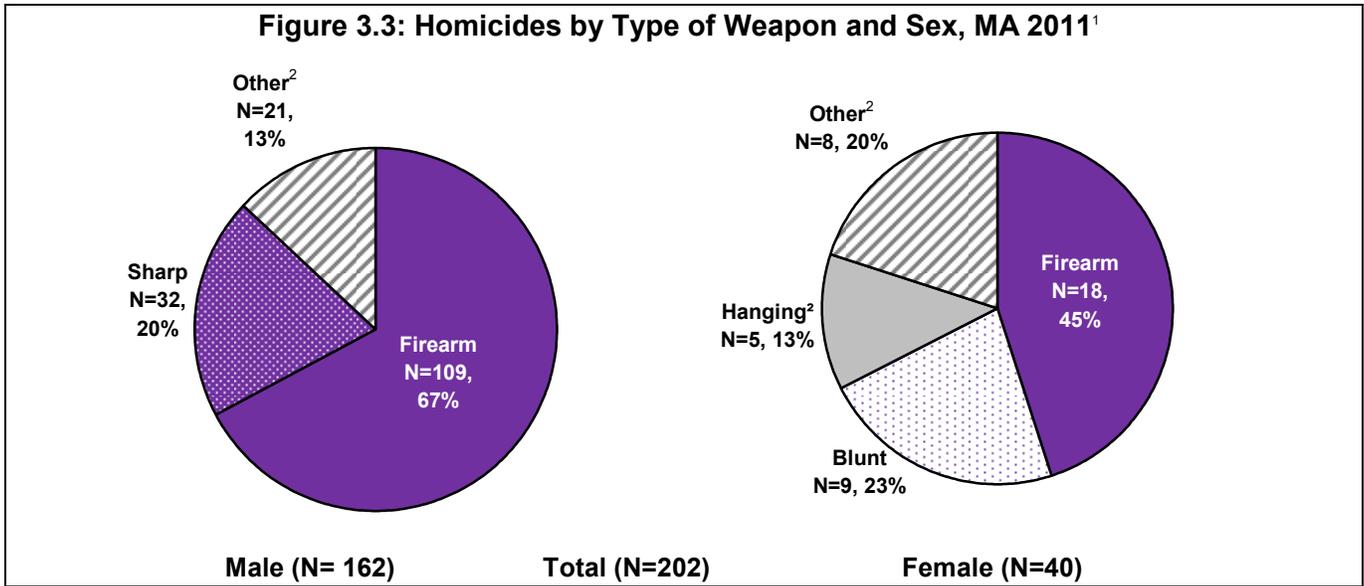
Years of Education	Female		Male		Total		
	N	%	N	%	N	%	Rate per 100,000 ¹
0-8	3	12.0	2	2.2	5	4.3	2.3
9-11	2	8.0	8	8.7	10	8.5	5.0
12	10	40.0	62	67.4	72	61.5	5.9
13-16	8	32.0	19	20.7	27	23.1	1.3
17+	2	8.0	1	1.1	3	2.6	--
Total²	25	100.0	92	100.0	117	100.0	2.6

- Victims ages 25 and older with 12 years (5.9/100,000) and 9-11 (5.0/100,000) years of education had the highest homicide rates.
- The majority of homicide victims 25 years and older (62%) had 12 years of education.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for crude and/or age-adjusted rates.

² There was 1 victim whose data element for marital status was unspecified and it is not included in the total.

METHODS OF HOMICIDES



- Firearms were the leading method of homicide and accounted for 63% of homicides (N=127), followed by sharp instruments, such as knives (17%, N=35).
- Firearms were the most commonly used weapon for male homicide deaths and accounted for 67% of male homicides (N=109) followed by sharp instruments (20%, N=32).
- Among females, firearms were the most commonly used weapon and accounted for 45% (N=18) of female homicides.
- There were twelve homicide victims that had more than one weapon contribute to their death. These are included in the analysis above but only the primary weapon type was selected for the analysis in this report.
 - Four victims died from a sharp instrument combined with a blunt instrument.
 - Two victims died from a combination of a firearm and a sharp instrument.
 - Two victims died from a combination of a blunt instrument, hanging/suffocation, and sharp instrument.
 - One victim died from hanging/suffocation combined with a blunt instrument.
 - One victim died from hanging/suffocation combined with a sharp instrument.
 - One victim died from fire/burn combined with poisoning.
 - One victim died from hanging/suffocation, blunt instrument, poisoning, and fire/burns.

¹ In cases where more than one weapon type was used (including multiple poisons), only the primary weapon type was selected for the analysis in this report. Weapons that are less than 10% of the male or female total are included in "other." Other weapons for males include personal weapons which are from bodily assaults (such as hands and feet), blunt instrument, hanging/strangulation/suffocation, poisoning, and shaking. Other weapons for females include sharp, personal weapons, fire/burn, poisoning. See Appendix A for a complete list of weapons.

² Hanging/strangulation/suffocation is referred to as "hanging" in this report.

METHODS OF HOMICIDES

Table 3.4: Homicide Weapons by Age Group: Number and Percent, MA 2011												
Weapon	Age Group											
	0-14		15-24		25-44		45-64		65+		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Firearm	0	0.0	64	81.0	45	67.2	11	28.2	7	63.6	127	62.9
Sharp	0	0.0	13	16.5	14	20.9	7	17.9	1	9.1	35	17.3
Other ¹	6	100.0	2	2.5	8	11.9	21	53.8	3	27.3	40	19.8
Total	6	100.0	79	100.0	67	100.0	39	100.0	11	100.0	202	100.0

- Firearms were the most common weapon of homicides for the age groups of 15-24 (81%), 25-44 (67%) and 65 and over (64%). Other weapons were the most common methods among 45-64 year olds (54%) and 0-14 year olds (100%).
- Weapons in the “other” category include blunt instruments, fire/burns, hanging/suffocation/strangulation, , personal weapons (hands, feet), poisoning, and shaking.

Table 3.5: Type of Firearm Used in Homicides: Number and Percent, MA 2011	
	N
Firearms Used In Homicides	116
Firearms with known firearm type	65
Firearms with unknown firearm type	51
Firearms with known firearm type	65
Handgun	60
<i>Semi-automatic pistol</i>	25
<i>Revolver</i>	10
<i>Other/Unknown handgun type</i>	25
Rifle/Shotgun	5

Table 3.5 includes the total number of firearms used in homicide incidents. Multiple firearms might be used in one incident or one firearm may be used in an incident where multiple persons were killed.

- Among the total of 116 firearms associated with 112 firearm homicide incidents, 62 incidents (55%) had information about the type of firearm used.
- Handguns were the most common type of firearm used in homicides. Handguns made up 92% of the known firearm types used in firearm-related homicides. Forty-two percent of these handguns were semi-automatic pistols, 17% were revolvers, and 42% were an other/unknown type of handgun.
- Rifles and shotguns made up 8% of firearms with known firearm type.

¹ “Other” weapon includes personal weapons (which are from bodily assaults, such as hands and feet), blunt instrument, hanging/strangulation/suffocation, fire/burns, neglect, and shaking. See Appendix A for a complete list of weapon variables.

LOCALITY OF HOMICIDES

Table 3.6: Homicides by County of Injury: Number, Percent, and Rate, MA 2011			
County	N	Percent¹	Rate per 100,000²
Population: 1,000,000+			
Middlesex	20	10.6	1.3
Population: 500,000 – 1,000,000			
Suffolk	70	37.0	9.6
Essex	22	11.6	2.9
Worcester	15	7.9	1.9
Bristol	8	4.2	1.5
Norfolk	8	4.2	1.2
Population: 100,000 – 500,000			
Hampden	25	13.2	5.4
Plymouth	14	7.4	2.8
Barnstable	4	2.1	--
Berkshire	1	0.5	--
Hampshire	0	0.0	0.0
Population: <100,000			
Dukes	1	0.5	--
Nantucket	1	0.5	--
Franklin	0	0.0	0.0
Other			
Unknown ¹	9	4.8	--
Outside MA ¹	4	2.1	--
Total known MA county	189	100.0	--
Total	202	--	3.1

- Among all counties, Suffolk County had the highest homicide number and rate (N=70, 9.6/100,000) and accounted for 37% of deaths, followed by Hampden County (N=25, 5.4/100,000) which accounted for 13% of deaths.
- Among counties with a population of 500,000-1,000,000, Suffolk County, which includes Boston, had the highest number and rate (N=70, 9.6/100,000). While 53% of the Massachusetts population lives in these 5 counties (Suffolk, Essex, Worcester, Bristol, and Norfolk), 65% of all homicides with a known Massachusetts county occurred here.
- Among counties with a population of 100,000-500,000, Hampden County, which includes Springfield, had the highest number and rate of homicides (N=25, 5.4/100,000).

¹ Percent is based on known Massachusetts county of injury (N=189). Rate was not calculated on unknown county of injury nor out of state injuries. Out of state homicides are those homicide incidents that occurred in another state, but the victim was transported to Massachusetts where they died.

² Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. Rates may be much higher among counties with small a population. See Appendix B for age-adjusted rates.

LOCALITY OF HOMICIDES

Figure 3.4: Homicides by County: Number, MA 2011

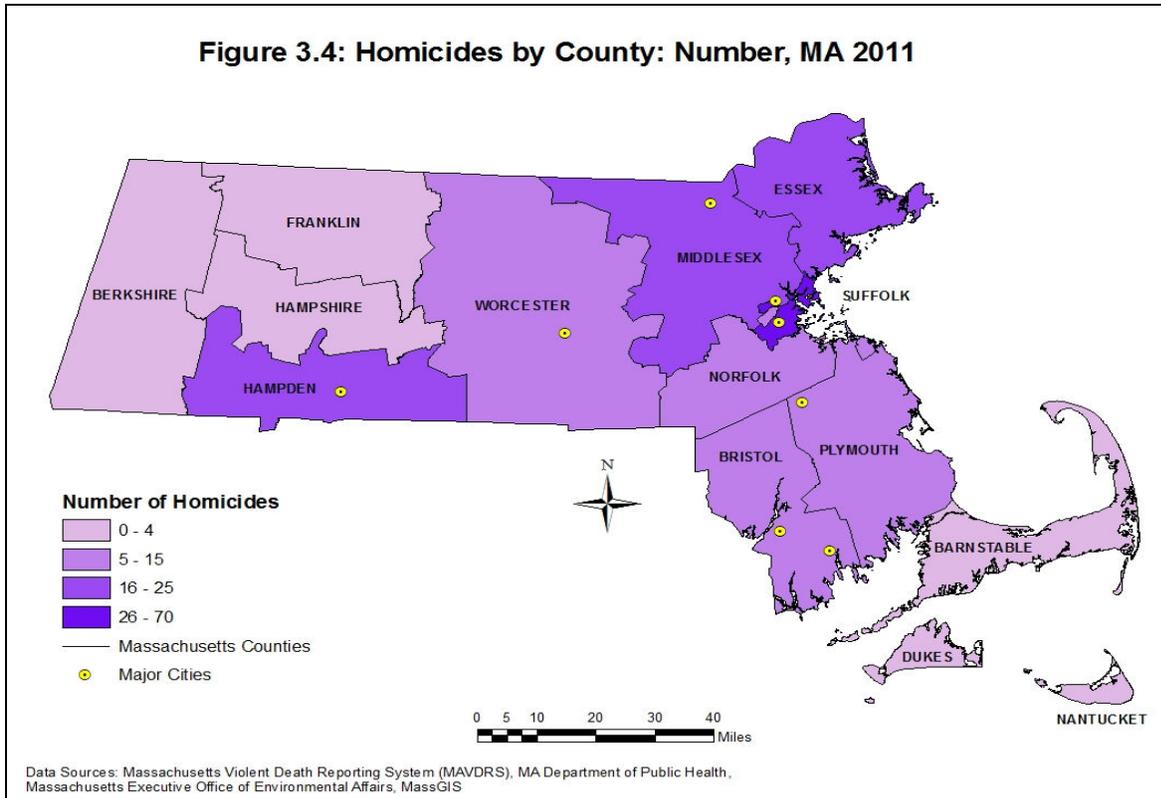
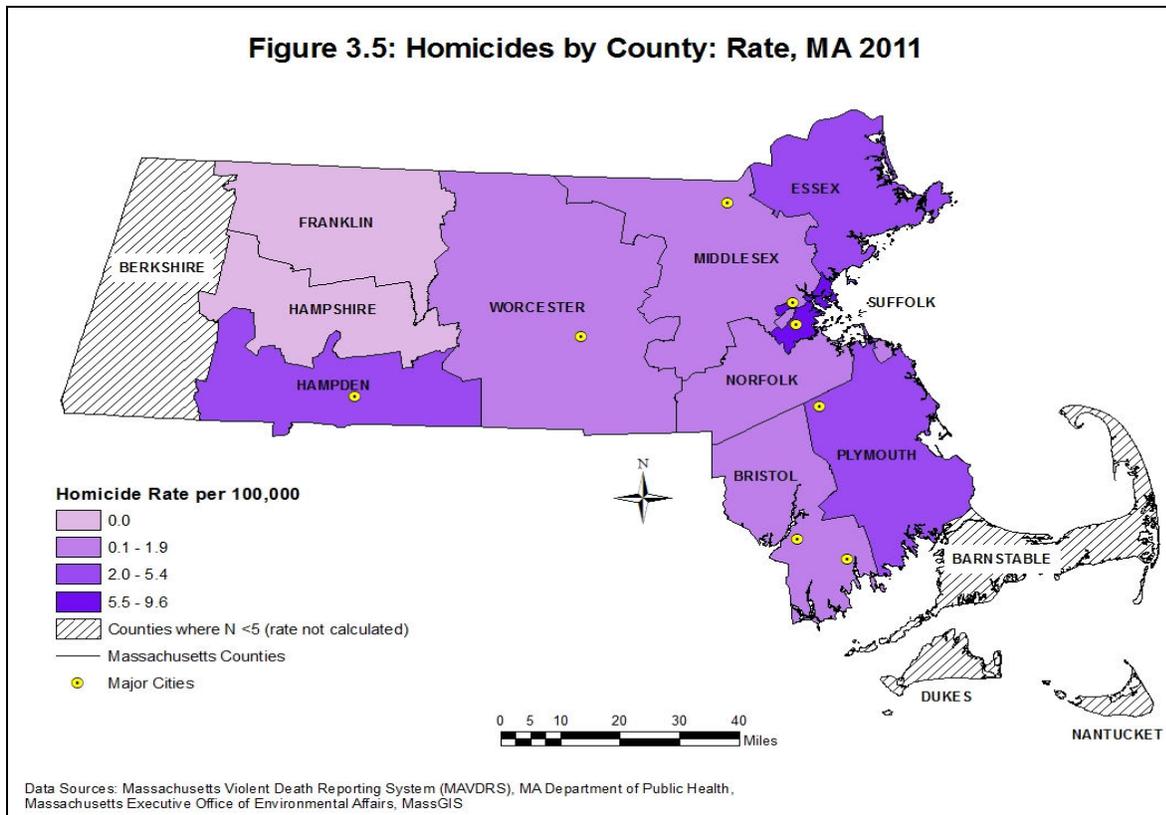


Figure 3.5: Homicides by County: Rate, MA 2011



LOCALITY OF HOMICIDES

Table 3.7: Homicides by City/Town: Number, Percent, and Rate, MA 2011			
	N	Percent¹	Rate per 100,000²
Group 1: Cities/Towns over 175,000 population:			
Boston	65	34.4	10.4
Worcester	10	5.3	5.5
Total Group 1	75	39.7	9.3
Group 2: Cities/Towns 75,000-175,000 population:			
Springfield	20	10.6	13.1
Lawrence	11	5.8	14.3
Brockton	7	3.7	7.4
Cambridge	5	2.6	4.7
New Bedford	5	2.6	5.3
Lowell	3	1.6	--
Lynn	3	1.6	--
Fall River	1	0.5	--
Quincy	1	0.5	--
Somerville	1	0.5	--
Newton	0	0.0	0.0
Total Group 2	57	30.2	5.3
Group 3: Cities/Towns 50,000-75,000 population:			
Weymouth	4	2.1	--
Waltham	3	1.6	--
Malden	2	1.1	--
Medford	2	1.1	--
Peabody	2	1.1	--
Revere	2	1.1	--
Chicopee	1	0.5	--
Haverhill	1	0.5	--
Plymouth	1	0.5	--
Brookline	0	0.0	0.0
Framingham	0	0.0	0.0
Taunton	0	0.0	0.0
Total Group 3	18	9.5	2.6
Group 4: Cities/Towns with < 50,000 population			
Total Group 4	39	20.6	1.0
Other			
Outside MA	4	--	--
Unknown State/City	9	--	--
Total known MA city	189	100.0	--
Total Homicides	202	--	3.1

- Boston had the highest number of homicides (N=65) and Lawrence, Springfield, and Boston had highest rates (14.3/100,000, N=11), (13.1/100,000, N=20), (10.4/100,000, N=65). These three cities (N=96) account for 51% of all homicide victims occurring in a known city/town in Massachusetts but account for only 13% of the total population of Massachusetts.

¹ Percent is based on known Massachusetts city of injury (N=189). Rate was not calculated on unknown city of injury nor out of state injuries.

² Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates.

PLACE OF HOMICIDES

Table 3.8: Places Where Homicides Occur: Number and Percent, MA 2011		
Location of injury	N	Percent¹
Buildings and surroundings:		
House, apartment, including driveway, porch, yard	91	48.4
Transportation utilities:		
Street/road, sidewalk, alley	59	31.4
Motor vehicle (excluding school bus and public transportation)	16	8.5
Retail and entertainment:		
Bar, nightclub, liquor store, and other commercial establishment	7	3.7
Other:		
Other	15	8.0
Total Known Place of Homicide	188	100.0
Unknown	14	--
Total Homicides	202	--

Of the 188 homicides where location of injury information was reported:

- Forty-eight percent of homicides occurred in a residence (N=91).
- Thirty-one percent of homicides occurred on a street, sidewalk, or alley (N=59).
- Approximately 8.5% of homicides occurred in a motor vehicle (N=16).
- Four percent of homicides occurred in a bar, nightclub, liquor store, or other commercial establishment (N=7).

¹ Percentages are based on the total number of cases for which location was known (N=205).

HOMICIDE CIRCUMSTANCES

The circumstances of a homicide can help in getting a better understanding of the events preceding the death. NVDRS allows for the endorsement of more than one circumstance for a homicide victim. It is important to note that some circumstances are more likely to be known and/or noted than others. The following table percentages are circumstances noted out of all homicides (N=202). See Appendix A for more information on circumstances.

Table 3.9 : Circumstances of Homicide: Number and Percent, MA 2011¹		
	N	Percent
Total number of homicides	202	100.0
Total number of victims with reported circumstances	157	77.7
Argument/abuse/conflict ²	50	24.8
Precipitated by another crime	47	23.3
<i>Precipitating crime was in progress at time of homicide</i>	22	10.9
Drug involvement	34	16.8
Alcohol and/or substance abuse problem	34	16.8
Gang rivalry or gang activities suspected to have played role in precipitating the homicide	29	14.4
Intimate partner violence related	25	12.4
Relationship problem	12	5.9
Current mental health problem	8	4.0
Drive-by shooting	5	2.5
Jealousy	5	2.5
Mentally ill suspect	5	2.5
Ever treated for mental illness	5	2.5

Of the 202 homicides:

- Twenty-five percent (N=50) were precipitated by an argument, abuse, or conflict. This excludes those circumstances that can be counted in intimate partner-related or gang-related.
- Twenty-three percent were noted to be precipitated by another crime, i.e. the homicide occurred as a result of another felony. Those crimes include robbery (N=17), drug trade (N=17), and witness intimidation/elimination (N=5).
- Seventeen percent (N=34) were noted to be related to drug involvement (drug dealing or illegal drug use is suspected to have played a role in precipitating the incident).
- Seventeen percent of victims (N=34) were noted to have an alcohol and/or other substance abuse problem.
- Fourteen percent (N=29) were noted to be related to gang activity.
- Twelve percent (N=25) were noted to have involved intimate partner violence.

¹ Circumstances were not included for counts less than five.

² "Argument/abuse/conflict" excludes those circumstances that can be counted in intimate partner-related, gang-related, or drug-related.

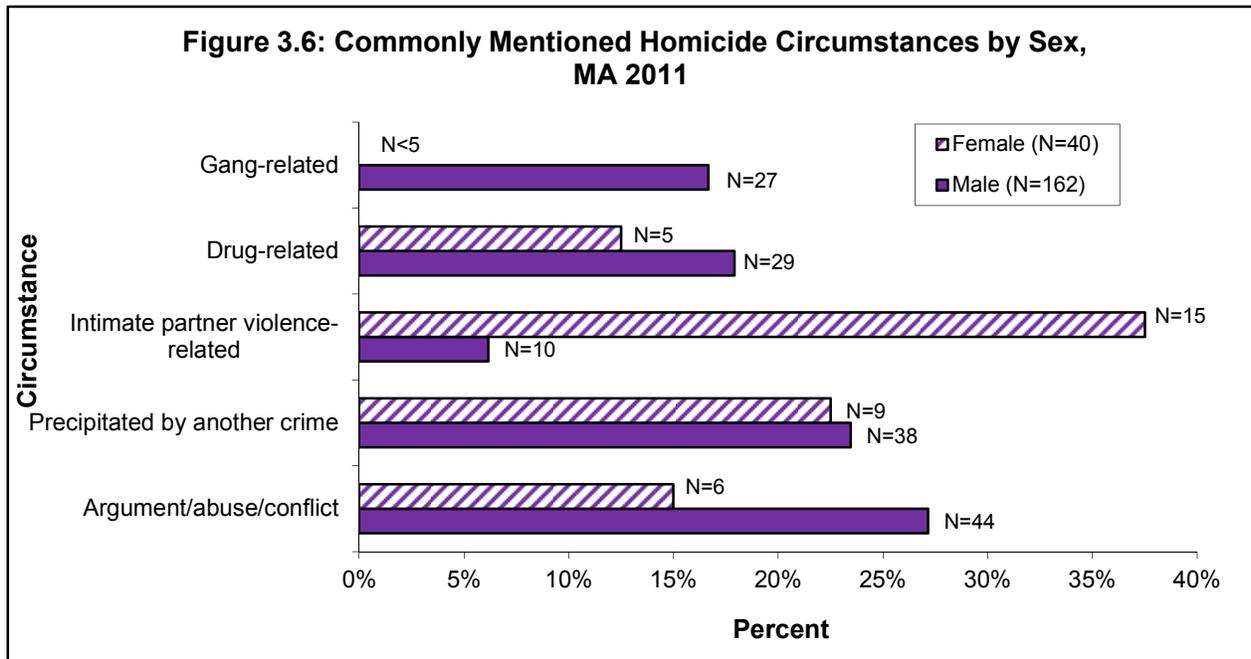
HOMICIDE CIRCUMSTANCES

Table 3.10: Homicide Circumstances by Age Group: Number and Percent, MA 2011		
	N	Percent
Age 15 to 24		
Total number of victims	79	100.0
Argument/abuse/conflict ¹	25	31.6
Gang-related	17	21.5
Precipitated by another crime	16	20.3
<i>Precipitating crime was in progress at time of homicide</i>	7	8.9
Drug-related	14	17.7
Intimate partner violence-related	8	10.1
Alcohol and/or substance abuse	6	7.6
Other relationship problem	5	6.3
Age 25 to 44		
Total number of victims	67	100.0
Precipitated by another crime	21	31.3
<i>Precipitating crime was in progress at time of homicide</i>	10	14.9
Drug-related	15	22.4
Argument/abuse/conflict ¹	13	19.4
Alcohol and/or substance abuse	13	19.4
Gang-related	10	14.9
Intimate partner violence-related	6	9.0
Age 45 to 64		
Total number of victims	39	100.0
Alcohol and/or substance abuse	13	33.3
Argument/abuse/conflict ¹	10	25.6
Intimate partner violence-related	10	25.6
Precipitated by another crime	8	20.5
Other relationship problem	5	12.8

- Of the 202 homicide victims, circumstance information was known for 157 victims of homicide (78%). There were 6 victims in the 0-14 age group and 11 in the 65+ age group, which are not shown on the above table due to small numbers.
- The most frequently noted circumstance among homicides of victims ages 15-24 was argument/abuse/conflict (N= 25, 32%), followed by gang-related (N=17, 22%) and precipitated by another crime (N=16, 20%).
- Among victims ages 25-44, precipitated by another crime (N=21, 31%) was the most often noted circumstance followed by drug-related (N=15, 22%).
- Among victims ages 45-64, alcohol and/or substance abuse (N=13, 33%), argument/abuse/conflict (N=10, 26%), and intimate partner violence-related were the most often noted circumstances (N=10, 26%).

¹ "Argument/abuse/conflict" excludes those circumstances that can be counted in intimate partner-related, gang-related, or drug-related.

HOMICIDE CIRCUMSTANCES



- There were 162 male (80%) and 40 female homicide victims (20%) for a total of 202 homicides.
- Of the total number of homicides (N=202), at least one circumstance was known for 77% of males (N=125) and 80% of females (N=32).
- The most frequently noted circumstance for males was that the homicide was argument (N=44, 27%) then precipitated by another crime (N=38, 24%).
- For females, the most frequently noted circumstance was intimate partner violence-related (N=15, 38%).

SUSPECT INFORMATION

A suspect, as defined in this report, is a person(s) identified as such in a police report. Suspect information may be quite limited containing only sex, or approximate age, for example. A suspect may or may not be the person eventually arrested, tried, and convicted for the homicide. A suspect may also be one who kills one or more other people and then himself/herself. These data are often based on preliminary statements prior to completion of an investigation and adjudication.

Table 3.11: Suspects of Homicides: Number and Percent, and Suspect Demographics, MA 2011		
	N	Percent
Total Homicide Victims	202	100.0
With suspect information	140	69.3
With no suspect information	62	30.7
Suspect Demographics		
Sex	N	Percent
Total suspects	164	100.0
Male	139	84.8
Female	11	6.7
Unknown Sex	14	8.5
Age Group		
Total suspects	164	100.0
Known Age	123	75.0
Unknown Age	41	25.0
Suspects with Known Age	123	100.0
0-14	0	0.0
15-24	54	43.9
25-34	41	33.3
35-44	14	11.4
45-54	7	5.7
55 and over	7	5.7

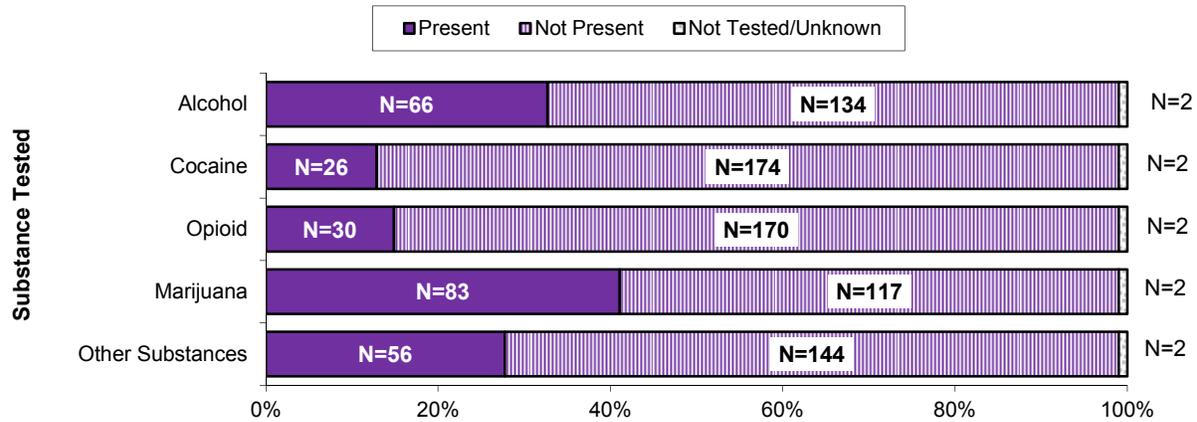
- **Homicide victims:** Information on suspect(s) was known for 69% of homicide victims (N=140).
- **Homicide incidents:**¹ Of the 127 incidents with suspect information, 78% had *only one* suspect associated with it (N=99). Twenty-eight incidents had *more than one* suspect (22%).
- Most suspects were male (85%, N=139) and 7% were female (N=11).
- Among the 123 identified suspects with known age, most (44%) were between the ages of 15-24 years, followed by age group 25-34 (33%). These two age groups account for 77% of suspects with information on age.

- There were 88 victims of homicides where the relationship between the victim to the primary suspect was known. In the majority of these cases (93%, N=82), the victim and suspect were known to each other (e.g. family member, intimate partner, friend, acquaintance, etc.). Of these identified suspects who were known to the victim:
 - 24% (N= 20) of suspects were a current or former intimate partner of the victim.
 - 24% (N=20) of suspects were a family member or caregiver of the victim.
 - 51% (N=42) of suspects were someone else known to the victim.

¹ Some incidents include multiple victims.

TOXICOLOGY OF HOMICIDE VICTIMS

Figure 3.7: Percentage of Homicide Victims by Toxicology Tests and Results, MA 2011



- Among the 202 homicide victims, 99% of victims (N=200) were tested for marijuana, opioids, and cocaine, blood alcohol concentration, and/or other substances. The above figure shows the percentages of those victims who had positive or negative results, as well as those not tested or whose results were unknown.
- Ninety-nine percent of homicide victims were tested for alcohol, cocaine, marijuana, and/or opioids. 67% of homicide victims (N=134) that were tested for alcohol, cocaine, marijuana and opioids tested positive for one or more of these substances. For alcohol, only those who had a BAC over 0.04 were included.
- Thirty-three percent of victims tested for alcohol were positive for alcohol (N=66); 29% (N=19) of these had results of .04 or less, which may be due to decomposition rather than ingestion of alcohol. Approximately 42% (N=83) of victims who were tested for marijuana had positive results.¹ Fifteen percent of victims tested were positive for opioids (N=30) and 13% were positive for cocaine (N=26).
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, carbon monoxide, antidepressants, and amphetamines.

Table 3.12: Blood Alcohol Concentration of Homicide Victims that Tested Positive by Age Group: Number and Percent, MA 2011¹

	Age Group								Total	
	< 21		21-44		45-64		65+			
BAC % ²	N	%	N	%	N	%	N	%	N	%
0.010 - 0.040 ³	<5	--	11	27.5	<5	--	<5	--	19	28.8
0.041 - 0.079	<5	--	7	17.5	<5	--	0	0.0	13	19.7
0.08 and over	<5	--	22	55.0	7	53.8	<5	--	34	51.5
Total	10	100.0	40	100.0	13	100.0	<5	--	66	100.0

- Among all homicide victims where BAC tested positive, approximately 71% of victims had a BAC of 0.041 and over (N=47). Levels over .040 are more likely indicative of alcohol ingestion.

¹ The discussion of toxicology results in the text describes the percent of positive results based on victims tested, while the chart depicts the percent of positive results based on the total number of victims. These percents may not be similar.

² Caution should be used when interpreting BAC due to variation in time among ingestion of alcohol, time of death, and drawing of blood for testing which will affect the outcome of the test.

³ BAC of 0.04% or less could be due to decomposition, rather than ingestion of alcohol.

Deaths of Undetermined Intent in Massachusetts

Data Highlights for 2011:¹

- Deaths of undetermined intent claimed an average of about two lives per week in 2011 (N=114).
- The rate of undetermined intent deaths for males (2.2/100,000) was approximately 1.7 times higher than the rate for females (1.3/100,000).
- Thirty-two percent of deaths of undetermined intent (N=36) were the result of poisonings/drug overdoses.

Compared to the U.S.:²

- Massachusetts had the same age-adjusted rate (1.6/100,000) of undetermined intent deaths in 2011 as the national age-adjusted rate (1.6/100,000) in 2010.
- The age-adjusted rates for deaths of undetermined intent for males were similar in the U.S. (1.9/100,000) for 2010 and in Massachusetts (2.1/100,000) for 2011.
- The age-adjusted rate for deaths of undetermined intent for females was 1.2/100,000 in the U.S. in 2010 and 1.1/100,000 in Massachusetts for 2011.

¹ The classification change at the office of the Chief Medical Examiner (OCME) in 2005 affected the number of undetermined intent deaths in Massachusetts: they were substantially less than in previous years. In 2011, the number of deaths of undetermined intent was 114, only 13% of the total. Comparatively, in 2004, the number of deaths of undetermined intent was 625, which was 50% of the total number of violent deaths.

² U.S. age-adjusted data for 2011 was not available when queried for publication and use in this report, therefore, 2010 U.S. numbers were used. U.S. Data taken from <http://www.cdc.gov/injury/wisqars/fatal.html>. See Appendix A: Technical Notes for more information.

DEMOGRAPHICS OF DEATHS OF UNDETERMINED INTENT VICTIMS

Table 4.1: Deaths of Undetermined Intent by Demographics: Number, Percent, and Rate, MA 2011			
	N	Percent	Rate per 100,000¹
Sex			
Male	71	62.3	2.2
Female	43	37.7	1.3
Race/Ethnicity			
White, non-Hispanic	97	85.1	1.9
Black, non-Hispanic	5	4.4	1.1
Asian, non-Hispanic	4	3.5	--
Hispanic	5	4.4	0.8
Other/mixed ²	3	2.6	--
Age Group			
0-14	0	0.0	0.0
15-24	13	11.4	1.4
25-34	9	7.9	1.0
35-44	19	16.7	2.2
45-54	37	32.5	3.7
55-64	22	19.3	2.6
65-74	5	4.4	1.1
75-84	6	5.3	2.0
85+	2	1.8	--
Unknown	1	0.9	--
Total	114	100.0	1.7

ADDITIONAL FINDINGS FOR 2011:

- The youngest undetermined intent victim was 18 years old and the oldest was 93 years old.
- The mean age for undetermined intent victims was 48.1 years and the median age was 48.0 years old.
- There were six homeless persons whose death was of undetermined intent.
- No victims of undetermined intent died in custody, such as jail, state institution, or foster care.³
- There were four deaths of undetermined intent that occurred at work.
- Eight war veterans⁴ deaths were of undetermined intent.

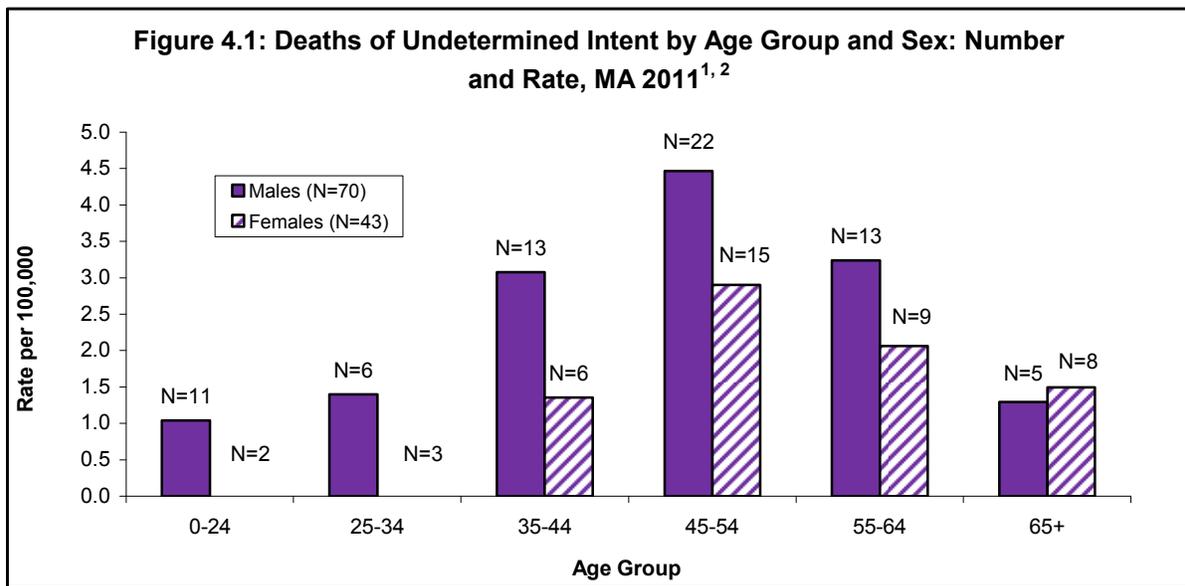
¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ The 'in custody' variable differs from the 'place where injury occurred;' however, due to the low number of undetermined deaths, 'place where injury occurred' is not included in this report for undetermined intent deaths.

⁴ This report only includes information where the deceased was a U.S. veteran **and** the war in which they served was specified.

DEMOGRAPHICS OF DEATHS OF UNDETERMINED INTENT VICTIMS



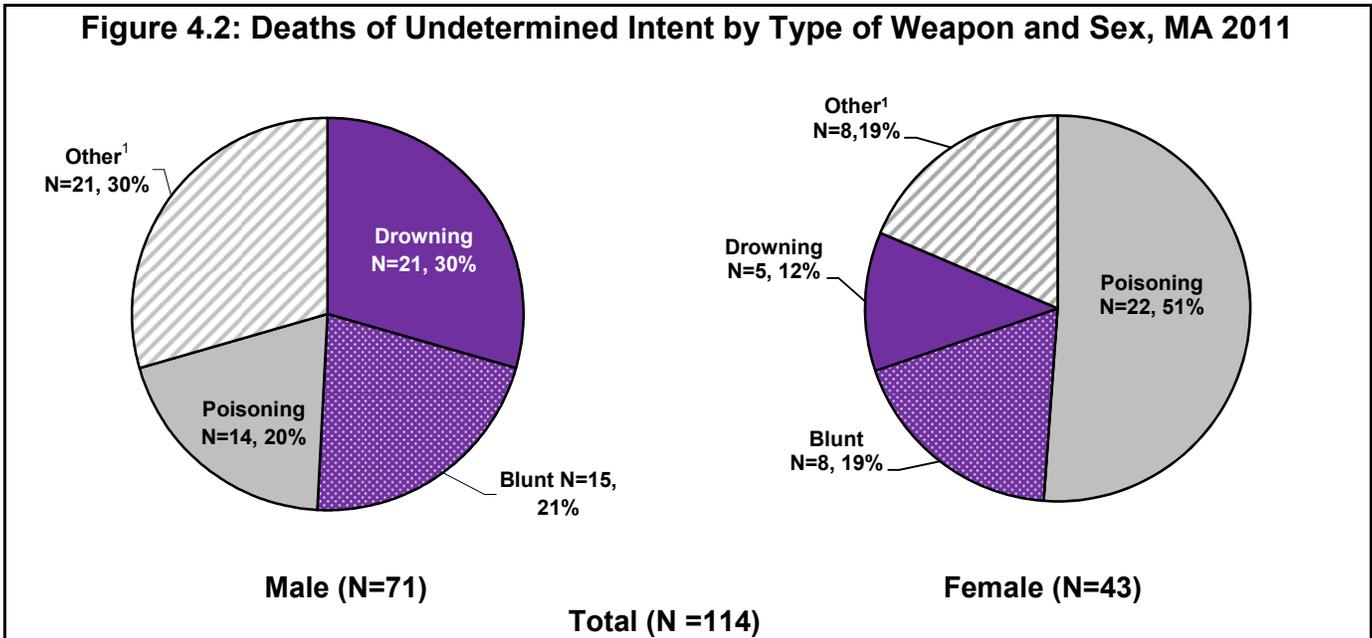
- For deaths of undetermined intent, approximately 69% of males were between the ages of 35 to 64. The male Massachusetts population is comprised of 41% males ages 35 to 64.
- For deaths of undetermined intent, approximately 70% of females were between the ages of 35 to 64. The female Massachusetts population is comprised of 41% females ages 35 to 64.
- Among males, those ages 45-54 had the highest rate (4.5/100,000) compared to all other age groups.
- Among females, those ages 45-54 had the highest rate (2.9/100,000) compared to all other age groups.
- While males generally had higher rates than females, sex differences were less pronounced among undetermined intent deaths than for homicide or suicide. The overall rate among males was 1.7 times higher than that of females.

¹ Rates were not calculated for counts less than five and are considered unstable for counts less than 20. See Technical Notes in Appendix A for calculating rates. See Appendix B for age-adjusted rates.

² There was 1 male where age was unknown.

METHOD OF DEATHS OF UNDETERMINED INTENT

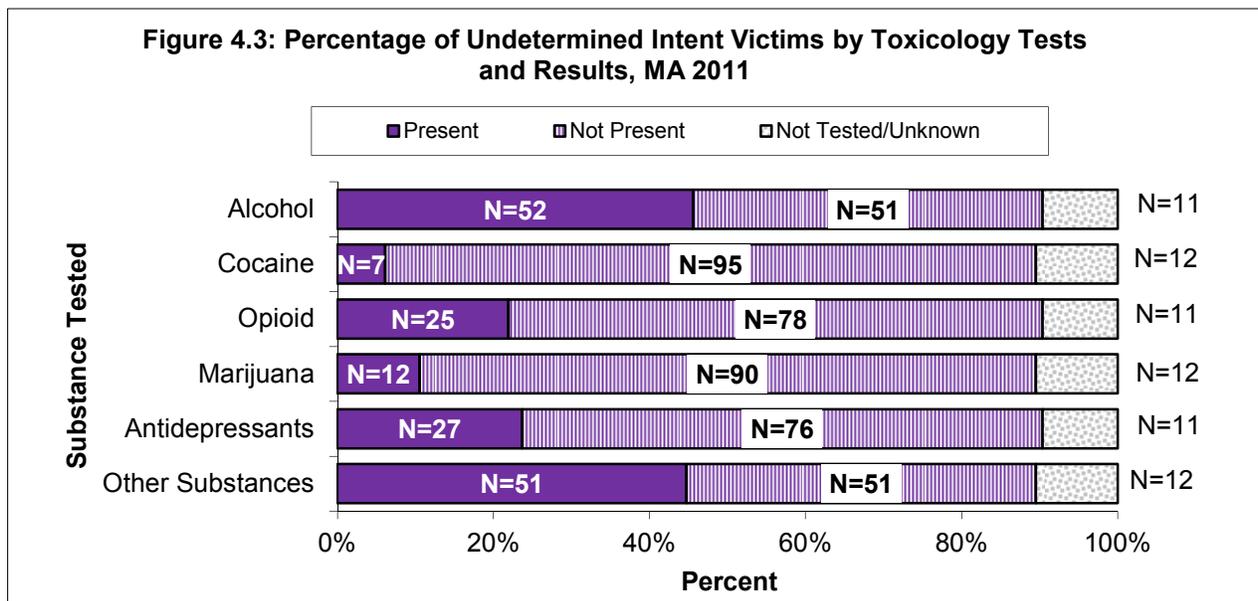
Figure 4.2: Deaths of Undetermined Intent by Type of Weapon and Sex, MA 2011



- In cases where more than one weapon type was used (including multiple poisons), only the first weapon type was selected for the analysis in this report.
- Poisonings/drug overdoses account for the most (32%) deaths of undetermined intent in Massachusetts in 2011 (N=36).
- The leading weapon type was poisoning/drug overdoses for females (51%, N=22)
- The leading weapon type for males was drowning (30%, N= 21).
- Another leading weapon type for both males and females was blunt injury.
- Of the poisoning deaths, 53% of victims (N=19) ingested more than one poison/drug.
- Of the poisoning/drug overdose deaths (N=36), 97% (N=35) were due to the ingestion of a street/recreation drug, alcohol, pharmaceutical prescription, or over-the-counter medication. 3% were due to a gas, like carbon monoxide, or another poison, like cyanide or antifreeze.

¹ Weapons that are less than 10% of the male or female total are included in "Other." Other weapons for males include: fall, fire/burn, firearm, hanging/suffocation, intentional neglect, motor vehicle, other transportation, other weapon, and unknown weapon. Other weapons for females include: fall, fire/burn, hanging/suffocation, motor vehicle, sharp instrument, other weapon, and unknown weapon. See Appendix A for a complete list of weapon.

TOXICOLOGY OF DEATHS OF UNDETERMINED INTENT VICTIMS



- Of the 114 victims of undetermined intent deaths approximately 90% were tested for blood alcohol concentration, cocaine, opioids, marijuana, and/or antidepressants.
- Ninety percent (N=102) of victims were tested for other substances, such as benzodiazepines, anti-psychotics, over-the-counter drugs, and carbon monoxide. Of those, 50% (N= 51) tested positive for other substances.¹
- Twenty-six percent (N=27) of victims tested were positive for antidepressants.
- Approximately 24% (N=25) of victims tested were positive for opioids. However, it is usually not possible to determine if the opioid was from a street drug, like heroin, or a prescription medication, such as codeine.¹
- Ninety percent (N=103) of undetermined intent victims were tested for blood alcohol concentration (BAC) and 50% (N=52) of those tested had a positive BAC.
- Seventy-one percent (N=37) of victims of an undetermined intent death, who had a positive BAC, had a BAC of over 0.08. A BAC of 0.08 is over the legal limit for operating a motor vehicle in Massachusetts.
- Other substances include benzodiazepines, anti-psychotics, over-the-counter drugs, carbon monoxide, and amphetamines.

¹ The discussion of toxicology results in the text describes the percent of positive results based on victims tested, while the chart depicts the percent of positive results based on the total number of victims. These percents may not be similar.

Appendix A: Technical Notes

Technical Notes

- Case Identification
- Deaths of Undetermined Intent
- Veteran Status
- Weapon Analysis
- Age-adjusted Rate
- Education and marital status rates
- City/town rates
- U.S. injury rates and U.S. population

Annual Estimates of the Population for Counties of Massachusetts, 2011

Data Elements and Sources

- Death certificates
- Medical Examiner
- Police Reports
- SHR/NIBRS reports
- Ballistics

Primacy among Data Sources

Circumstances

- Homicide
- Suicide
- Deaths of Undetermined Intent
- Unintentional Firearm

Glossary

Weapons

Technical Notes

Case Identification

Violent death cases in the MAVDRS database are first identified by reviewing the manner of death field on death certificates maintained by the Massachusetts Department of Public Health's Registry of Vital Records and Statistics (RVRS). A record is created in the MAVDRS database for any death categorized as homicide, suicide, or could not be determined. These deaths represent a preliminary violent death data file. The final data file is determined on the basis of International Classification of Diseases, Tenth Revision (ICD-10) codes for the underlying cause of death field on death certificates.

The ICD-10 codes that identify cases to be included in the NVDRS database are determined by the CDC and are listed below:

Manner of Death	ICD-10 Code	
	Death < 1 Year after the injury	Death >1 year after the injury
■ Intentional Self-Harm	X60-X84	Y87.0
■ Assault	X85-X99, Y00-Y09	Y87.1
■ Undetermined Intent	Y10-Y34	Y87.2, Y89.9
■ Unintentional Firearm	W32-W34	Y86
■ Legal Intervention, excluding executions	Y35.0-Y-35.4, Y35.6, Y35.7	Y89.0
■ Terrorism	U01, U03	U02

Before finalizing the database, a death file maintained by the RVRS is generated for all codes meeting the ICD-10 case definition. If discrepancies occur between the ICD-10 code and the manner of death field on the death certificate, i.e., the death certificate manner indicates suicide and the ICD-10 indicates undetermined intent, effort is made to resolve the discrepancy through follow-up with the Office of Vital Records and Statistics and the Office of the Chief Medical Examiner (OCME). Cases are excluded when the ICD-10 code falls outside of the NVDRS ICD-10 case definition. In addition, a case is deleted from the database if an Affidavit and Correction of Death is submitted to Vital Records from the OCME changing the manner from homicide, suicide, or undetermined to natural or accident (unless the accident is firearm-related).

Deaths of Undetermined Intent

An important change occurred in 2005 affecting the number of deaths of undetermined intent in Massachusetts. Most injury deaths are referred to the Commonwealth of Massachusetts Office of the Chief Medical Examiner (OCME) for determination of cause and intent. In May 2005, a change in the OCME policy affected the assignment of manner/intent of many poisoning (drug overdose) deaths. Up to that point, poisoning deaths, where there was no explicit evidence that the case was a suicide or homicide, were assigned a manner of "could not be determined." With the new policy, these deaths are assigned a manner of accident/unintentional. Because MAVDRS does not collect information on accidental/unintentional deaths, these poisoning deaths are no longer included in data presented in these reports. This change caused the total number of violent deaths and the number of undetermined deaths for 2005 and forward to be substantially less than in previous years. The current policy is similar to how these deaths are classified in other states.

Veteran Status

Massachusetts collects data on a *war veterans*, which is different than most other states which captures all veterans. The wording of the death certificate used in Massachusetts says, "If [decedent is a] US war veteran, specify name of war." In the MAVDRS database, the victim was identified as a veteran only if a war was specified under this section on the death certificate. In addition, this report includes occurrent deaths only (deaths occurring in Massachusetts) and thus excludes deaths from military-related actions or other causes occurring outside Massachusetts.

Weapon Analysis

In cases where more than one weapon type was used (e.g. combination of blunt instrument and firearm) only the first weapon type was selected for the analysis in this report, which was the first one listed in the cause of death from the Medical Examiner, even though all weapons mentioned in the cause of death contributed to the death equally. In cases of multiple poisons, only the first poison listed in the cause of death was analyzed in the weapon analysis.

Technical Notes continued

Calculating Rates

In calculating rates for **race, Hispanic origin, sex, age group, and county**, 2011 population estimates were based on National Center for Health Statistics Postcensal estimates of the resident population of the United States for July 1, 2010-July 1, 2011, by year, county, single-year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex (Vintage 2011). Prepared under a collaborative arrangement with the U.S. Census Bureau. Available from: http://www.cdc.gov/nchs/nvss/bridged_race.htm as of July 18, 2012.

Age-adjusted Rate

A summary rate was designed to minimize the distortions created by differences in age distribution when comparing rates for populations with different age compositions. Age-adjusted rates are useful when comparing death rates from different populations or in the same population over time. Similarly, age-adjusted rates would be useful in comparing Massachusetts to another state with a very different age distribution. Age-adjusted rates are calculated by weighting the age-specific rates for a given year by the age distribution of the Year 2000 U.S. Standard Population. The weighted age-specific rates are then added to produce the adjusted rate for all ages combined.

Education and marital status rates were calculated using the U.S. Census Bureau's American Community Survey 2009-2011 3-Year Estimates found on the internet at:

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_3YR_B15002&prodType=table And

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_3YR_B12001&prodType=table

City/town rates are calculated using 2011 population estimates from the U.S. Census Bureau's Annual Estimates of the Resident Population for Minor Civil Divisions in Massachusetts, by County: April 1, 2010 to July 1, 2011 (SUB-EST2011-04-25) Source: Population Division, U.S. Census Bureau, Release Date: June 2012.

<http://www.census.gov/popest/data/cities/totals/2011/tables/SUB-EST2011-04-25.xls>

U.S. injury rates and U.S. population were accessed from Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS), available from URL: www.cdc.gov/ncipc/wisqars

ANNUAL ESTIMATES OF THE POPULATION FOR COUNTIES OF MASSACHUSETTS, 2011

Annual Estimates of the Population for Counties of Massachusetts, 2011 ¹		
County	2011 Population Estimate	Percent of population
Barnstable	215,769	3.3
Berkshire	130,458	2.0
Bristol	548,922	8.3
Dukes	16,766	0.3
Essex	748,930	11.4
Franklin	71,599	1.1
Hampden	463,783	7.0
Hampshire	157,822	2.4
Middlesex	1,518,171	23.0
Nantucket	10,142	0.2
Norfolk	675,436	10.3
Plymouth	497,579	7.6
Suffolk	730,932	11.1
Worcester	801,227	12.2
Total	6,587,536	100.0

¹ Annual Estimates of the Resident Population for Minor Civil Divisions in Massachusetts, by County: April 1, 2010 to July 1, 2011 (SUB-EST2011-04-25) Population Division, U.S. Census Bureau, Release Date: June 2012 <http://www.census.gov/popest/data/cities/totals/2011/tables/SUB-EST2011-04-25.xls>

Data Elements and Sources

Data sources utilized by MAVDRS include death certificates, medical examiner records, police reports, Supplementary Homicide Reports (SHR), National Incident Based Reporting System (NIBRS) reports, emergency department records, Emergency Medical Services reports (EMS), and the Massachusetts State Police Crime Laboratory. Over 270 data elements may be collected for each incident in the database, including information on: the incident, person or persons (victim and suspect), toxicology, weapon(s), circumstances associated with a homicide or suicide, relationship between a suspect and victim, and relationship between a person and weapon. More information on the NVDRS data elements and coding protocols is available at the NVDRS website: <http://www.cdc.gov/ViolencePrevention/NVDRS/>

Death certificates: Death certificates serve as an important data source for the cause of death, place and date of death, and demographic information on the victim. Also included on the death certificates are fields for injury information, including date, time, location, address of injury, and if the injury occurred at work. It is the only source used for the assignment of the ICD-10 code, as well as the official legal and public document of the death.

Medical Examiner files: Medical examiner records include toxicology reports that typically test for alcohol, cocaine, and opioids, as well as other drugs. Records will also have details on wounds and other injury circumstances.

Police Reports: Data from law enforcement agencies (city and town police reports) include demographics of victims and suspects, relationships between victims and suspects, weapons, and circumstances, as well as data from SHR and NIBRS.

SHR/NIBRS: The SHR and NIBRS are incident-based reports voluntarily submitted by local law enforcement agencies to the Federal Bureau of Investigation as part of an aggregate crime reporting system. Massachusetts cities and towns participate either in NIBRS or SHR, and approximately half of the jurisdictions currently participate in either system. The MAVDRS database includes data elements for SHR but not for NIBRS. In Massachusetts, NIBRS information is entered in police report data fields. For incidents where information is available from both police and NIBRS, information from the police takes precedence.

Crime Lab (ballistics): The Massachusetts State Police Crime Lab provides weapon and ballistics information for firearm-related deaths. Details of the Crime Lab report include make and model of the firearm, caliber or gauge, and other ballistics information.

Primacy among Data Sources

NVDRS has predetermined rules governing data source primacy when multiple sources are available for the same variable. Data sources have been ranked in terms of their likely accuracy for each data element. The source with first primacy is considered most reliable for a given variable and will be the source of choice. Lower primacy sources are used when a higher primacy source is not available. In the case of a victim's sex, for instance, primacy rules establish the death certificate as the preferred data source, OCME records as the second choice, and police records as the third choice.

NVDRS data file: Data from all sources is entered into the MAVDRS database using software and standards provided to participating states by the Centers for Disease Control and Prevention (CDC).

Circumstances

The list of circumstances is generated based on the manner of death assigned when the record is created. For instance, if the death certificate says "homicide," then the person abstracting data (referred to as the "Abstractor") would choose "homicide" and only homicide circumstances are available to endorse. For suicides and deaths of undetermined intent, a different list of circumstances is available to endorse. Variables collected for homicides are not the same as those for suicides or deaths of undetermined intent and vice versa. Note that analysis changed in 2007. Circumstance percentages have since been presented using the total number of victims rather than the number of victims where circumstance information was noted.

Homicide Circumstances include the following:

Precipitated by another crime	Hate crime
Nature of first other crime	Brawl (mutual physical fight)
Nature of second other crime	Terrorist attack
Crime in progress of homicide	Victim was a bystander
Argument over money/property	Victim was a police officer on duty
Jealousy (lovers' triangle)	Victim used weapon
Intimate partner violence-related	Intervener assisting crime victim
Other argument, abuse, conflict	Mercy killing
Drug involvement	Other (includes drive-by shooting, random violence, and mentally ill suspect)
Gang-related	

Suicide/Undetermined Circumstances include the following:

Current depressed mood	Other relationship problem
Current mental health problem	Job problem
Type of first mental illness diagnosed	School problem
Type of second mental illness diagnosed	Financial problem
Other mental health diagnosis	Suicide of friend or family in past 5 years
Current treatment for mental illness	Other death of friend or family
Ever treated for mental illness	Recent criminal legal problem
Alcohol problem	Other legal problems
Other substance problem	Perpetrator of interpersonal violence
Other addiction	Victim of interpersonal violence
Person left a suicide note	Eviction/loss of home
Disclosed intent to commit suicide	Anniversary of a traumatic event
History of suicide attempts	History of abuse as a child
Crisis in the past two weeks	Other
Physical health problem	
Intimate partner problem	

Unintentional Firearm Circumstances include the following:

Hunting	Thought gun was unloaded, other
Target shooting	Unintentionally pulled trigger
Self-defensive shooting	Bullet ricochet
Celebratory firing	Gun defect or malfunction
Loading/unloading gun	Fired while holstering/unholstering
Cleaning gun	Dropped gun
Showing gun to others	Fired while operating safety/lock
Playing with gun	Gun mistaken for toy
Thought safety was engaged	Other
Thought unloaded: magazine disengaged	

Glossary

Asphyxiation: the condition of being deprived of oxygen and synonymous with suffocation.

Blunt instrument: a weapon that does not have a sharp or penetrating point, such as a club or a bat.

Brawl: three or more persons involved in a mutual, physical fight. The brawl may or may not escalate to involve weapons. This excludes one-sided physical fight (e.g., a group beats a single victim to death) or a fight between only two people.

Current depressed mood: identifies victims who were documented as having a current depressed mood by a family member or someone close to the victim. Family may frequently report that a victim “had been depressed lately” but the record does not supply information about whether the person was diagnosed with a depressive disorder. Rather than coding such a victim as suffering from depression (which may or may not be clinically true), this variable captures the available information more appropriately. The depressed mood may be part of a clinical depression or a short-term sadness. Depressed mood should not be inferred by the coder based on the circumstances; rather it must be noted in the record.

Current Mental Health Problem: identifies victims who were identified as having a mental health problem. Mental health problems include those disorders and syndromes listed in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Revision) with the exception of alcohol and other substance dependence (as these are captured in separate variables). Diagnoses are: Depression/dysthymia, Bipolar disorder, Schizophrenia, Anxiety disorder, Post-traumatic stress disorder, ADD or hyperactivity disorder, Eating disorder, Obsessive-compulsive disorder, Other (specify in diagnosis text), including mental retardation, autism, personality disorders, Alzheimer’s, etc. “Yes” is indicated if it is mentioned in the OCME or police report that the victim was being treated for a mental health problem even if the nature of the problem is unclear (e.g., “was being treated for various psychiatric problems”). This variable would also be coded as “Yes” if the victim has a prescription for an antidepressant or other psychiatric medication.

Current Treatment for Mental Health Problem: identifies victims who were in current treatment for a mental health problem in the last two months. Treatment includes seeing a psychiatrist, psychologist, medical doctor, therapist, or other counselor for a mental health or substance abuse problem; receiving a prescription for an antidepressant or other psychiatric medication; or residing in an inpatient or halfway house facility for mental health problems. Treatment also includes past treatment, unless noted that the problem has been resolved. Mental health problems include those disorders and syndromes listed in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Revision) and alcohol and other substance dependence.

Drowning: weapon resulting from submersion in water or other liquid.

Fall: weapon resulting from a fall, push, or jump from a high place.

Homicide: death resulting from the intentional use of force or power, threatened or actual, against another person, group, or community.

Incident: violent death incident can be made up of any of the following:

1. One isolated violent death.
2. Two or more homicides, including legal interventions, when the deaths involve at least one person who is a suspect or victim in the first death and a suspect and victim in the second death and the fatal injuries are inflicted less than 24 hours apart.
3. Two or more suicides or undetermined manner deaths, when: there is some evidence that the second or subsequent death was planned to coincide with and follow the preceding death and the fatal injuries are inflicted less than 24 hours apart.
4. One or more homicides or unintentional firearm deaths combined with one or more suicides when: the suspect in the first death is the person who commits suicide, and the fatal injuries are inflicted less than 24 hours apart.
5. Two or more unintentional firearm deaths when the same firearm inflicts two or more fatal injuries and the fatal injuries are inflicted by one shot or burst of shots.

Glossary continued

Intimate partner violence-related: a circumstance in which a homicide is related to conflict between current or former intimate partners. An intimate partner is defined as a current or former girlfriend/boyfriend, date, or spouse. Includes if other people are also killed (a child, friend of the victim, a bystander) and if the intimate partner is not (e.g., the child of the intimate partner is the victim). The definition of intimate partner includes first dates.

Intimate partner problem: This circumstance identifies deaths that are related to friction or conflict between intimate partners. It includes incidents where the victim was experiencing problems with a current or former intimate partner, such as a divorce, break-up, argument, jealousy, conflict, or discord. It does not necessarily mean there was violence in the relationship.

Legal Intervention Death: death when the decedent was killed by a police officer or other peace officer (persons with specified legal authority to use deadly force), including military police, acting in the line of duty.

Other argument, abuse, conflict: an argument or other interpersonal conflict such as abuse, insult, grudge, or personal revenge that precipitated the death. This excludes arguments over money/property, intimate partner violence, and jealousy between intimate partners. Cases that appear to involve child abuse, elder abuse, and abuse by a caretaker should be coded for this circumstance.

Personal weapons: includes the body, such as fists, feet, or hands used as a weapon.

Poisoning: weapon including drugs (prescription, street, or alcohol), toxins, chemical substances, or gas (such as carbon monoxide).

Suffocation: condition of being deprived of oxygen and synonymous with asphyxiation.

Sharp instrument: weapons that have a cutting edge or penetrating point, such as a knife, razor, chisel, or broken glass.

Suicide: death resulting from the intentional use of force against oneself; a preponderance of evidence should indicate that the use of force was intentional.

Terrorism-related death: homicides or suicides that result from events that are labeled by the Federal Bureau of Investigation (FBI) as acts of terrorism, which is a mechanism of death rather than a manner of death, where the manner of such death is either homicide or suicide. This designation can only be applied when federal authorities define the death as such.

Unintentional firearm death: deaths resulting from gunshot wounds inflicted by the victim or another person unintentionally.

Undetermined manner of death: an event where available information is insufficient to enable a medical or legal authority to make a distinction between accident, self-harm, and assault (from the ICD-10 code definition).

Veteran Status: MAVDRS collected veteran status on victims only if they were a **war veteran** due to the death certificate used in Massachusetts. The victim was identified as a veteran in our database only if a war was specified under the section on the death certificate that says, "If US war veteran, specify war."

Violent Death: A death that results from the intentional use of physical force or power, threatened or actual, against oneself, another person, or a group or community. The person using the force or power need only have intended to use force or power; they need not have intended to produce the consequence that actually occurred. "Physical force" should be interpreted broadly to include the use of poisons or drugs. The word "power" includes acts of neglect or omission by one person who has control over another. In addition, MAVDRS captures unintentional firearm deaths.

Weapons

Weapons, as defined by NVDRS, differ slightly from the typical use of the term (firearm, knife, etc) and can include neglect or a means (drowning, fall) as well.

The following are the weapon choices for NVDRS:

- | | |
|--|--|
| Firearm | Drowning |
| Non-powder gun | Fire or burns |
| Sharp instrument | Explosive |
| Blunt instrument | Fall |
| Hanging, strangulation, suffocation | Poisoning |
| Personal weapons | Intentional neglect, (e.g., starving a baby) |
| Shaking, (e.g., shaken baby syndrome) | Biological weapons |
| Motor vehicle, including buses, motorcycles
(not vehicular homicides- only when person is
deliberately hit with a motor vehicle) | Other |
| Other transport vehicle, (e.g., trains, planes, boats) | Unknown |

Appendix B: Age-adjusted Rates

Violent Deaths

- Table 1: Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 2: Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 3: Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011

Suicides

- Table 4: Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 5: Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 6: Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011

Homicides

- Table 7: Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 8: Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 9: Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011

Deaths of Undetermined Intent

- Table 10: Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 11: Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011
- Table 12: Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011

VIOLENT DEATH AGE-ADJUSTED RATES

Table 1. Violent Deaths by Intent and Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Intent				
Suicide	588	64.5	8.9	8.5 (7.8,9.2)
Homicide	202	22.1	3.1	3.0 (2.6,3.5)
Undetermined	114	12.5	1.7	1.6 (1.3,1.9)
Unintentional firearm	2	0.2	--	--
Legal Intervention	6	0.7	0.1	0.1 (0.0,0.2)
Sex				
Male	681	74.7	21.3	20.5 (18.9,22.0)
Female	231	25.3	6.8	6.5 (5.6,7.3)
Race/Ethnicity				
White, non-Hispanic	689	75.5	13.5	12.7 (11.7,13.7)
Black, non-Hispanic	89	9.8	19.7	17.9 (14.1,21.7)
Asian, non-Hispanic	23	2.5	6.0	6.4 (3.6,9.1)
Hispanic	88	9.6	13.5	11.9 (9.3,14.5)
Other/mixed ²	23	2.5	--	--
Age Group				
0-14	11	1.2	1.0	NA
15-24	168	18.4	18.0	NA
25-34	134	14.7	15.4	NA
35-44	153	16.8	17.7	NA
45-54	216	23.7	21.4	NA
55-64	144	15.8	17.2	NA
65-74	43	4.7	9.1	NA
75-84	28	3.1	9.4	NA
85+	14	1.5	9.3	NA
Unknown	1	0.1	--	NA
Total	912	100.0	13.8	13.2 (12.4,14.1)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

VIOLENT DEATH AGE-ADJUSTED RATES

Table 2. Violent Deaths by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹

Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	194	77.5	7.4	7.0 (6.0,8.0)
Black, non-Hispanic	8	3.5	3.4	2.8 (0.9,4.8)
Asian, non-Hispanic	10	4.3	5.0	5.0 (1.8,8.2)
Hispanic	17	7.4	5.1	4.8 (2.5,7.2)
Other/mixed ²	2	0.9	--	--
Total	231	100.0	6.8	6.5 (5.6,7.3)

Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
White, non-Hispanic	495	76.1	20.1	18.9 (17.2,20.6)
Black, non-Hispanic	81	11.9	37.1	34.6 (26.7,42.6)
Asian, non-Hispanic	13	1.9	7.1	7.9 (3.3,12.4)
Hispanic	71	10.4	22.2	19.0 (14.4,23.6)
Other/mixed ²	21	3.1	--	--
Total	681	100.0	21.3	20.5 (18.9,22.0)

Table 3. Violent Deaths by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹

County	N	Percent ³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	44	5.1	20.4	22.6 (15.3,29.9)
Berkshire	22	2.5	16.9	15.1 (8.4,21.9)
Bristol	66	7.6	12.0	11.6 (8.8,14.5)
Dukes	3	0.3	--	--
Essex	93	10.8	12.4	12.4 (9.8,14.9)
Franklin	6	0.7	8.4	7.5 (1.2, 13.8)
Hampden	70	8.1	15.1	14.9 (11.3,18.4)
Hampshire	16	1.8	10.1	9.3 (4.6,14.0)
Middlesex	166	19.2	10.9	10.4 (8.8,12.0)
Nantucket	3	0.3	--	--
Norfolk	60	6.9	8.9	8.2 (6.1,10.3)
Plymouth	71	8.2	14.3	13.7 (10.4,17.0)
Suffolk	138	16.0	18.9	17.1 (14.1,20.1)
Worcester	107	12.4	13.4	12.8 (10.3,15.3)
Unknown/Outside MA ⁴	47	--	--	--
Total known MA county	865	100.0	--	--
Total	912	--	13.8	13.2 (12.4, 14.1)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ Percent is based on known Massachusetts county of violent death (N=865); total rate is based on total violent deaths (N=912).

⁴ Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

SUICIDE AGE-ADJUSTED RATES

Table 4. Suicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	441	75.0	13.8	13.2 (11.9,14.5)
Female	147	25.0	4.3	4.2 (3.5,4.8)
Race/Ethnicity				
White, non-Hispanic	523	88.9	10.3	9.7 (8.8,10.5)
Black, non-Hispanic	16	2.7	3.5	3.3 (1.6, 4.9)
Asian, non-Hispanic	15	2.6	3.9	4.2 (2.0,6.5)
Hispanic	26	4.4	4.0	4.0 (2.4,5.6)
Other/mixed ²	8	1.4	--	--
Age Group				
0-14	5	0.9	0.4	NA
15-24	73	12.4	7.8	NA
25-34	81	13.8	9.3	NA
35-44	108	18.4	12.5	NA
45-54	155	26.4	15.4	NA
55-64	106	18.0	12.7	NA
65-74	31	5.3	6.5	NA
75-84	20	3.4	6.7	NA
85+	9	1.5	6.0	NA
Total	588	100.0	8.9	8.5 (7.8,9.2)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

SUICIDE AGE-ADJUSTED RATES

Table 5. Suicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	134	91.2	5.1	5.0 (4.1,5.8)
Black, non-Hispanic	3	2.0	--	--
Asian, non-Hispanic	7	4.8	3.5	3.5 (0.8,6.2)
Hispanic	3	2.0	--	--
Other/mixed ²	0	0.0	--	--
Total	147	100.0	4.3	4.2 (3.5,4.8)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	389	88.2	15.8	14.8 (13.3,16.3)
Black, non-Hispanic	13	2.9	6.0	5.8 (2.6,9.1)
Asian, non-Hispanic	8	1.8	4.4	5.1 (1.3,8.9)
Hispanic	23	5.2	7.2	7.2 (4.1,10.2)
Other/mixed ²	8	1.8	--	--
Total	441	100.0	13.8	13.2 (11.9,14.5)

Table 6. Suicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
County	N	Percent³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	33	5.7	15.2	16.6 (10.4,22.8)
Berkshire	18	3.1	13.8	11.5 (5.9,17.2)
Bristol	50	8.7	9.1	8.8 (6.4,11.3)
Dukes	2	0.3	--	--
Essex	63	10.9	8.4	8.2 (6.1,10.3)
Franklin	4	0.7	--	--
Hampden	37	6.4	8.0	8.2 (5.5,10.8)
Hampshire	13	2.3	8.2	7.5 (3.3,11.7)
Middlesex	124	21.5	8.2	7.9 (6.5,9.3)
Nantucket	1	0.2	--	--
Norfolk	49	8.5	7.3	6.7 (4.8,8.6)
Plymouth	46	8.0	9.2	8.9 (6.3,11.6)
Suffolk	58	10.1	7.9	8.2 (6.0,10.3)
Worcester	78	13.5	9.7	9.2 (7.1,11.2)
Unknown/Outside MA ⁴	12	--	--	--
Total known MA county	576	100.0	--	--
Total	588	--	8.9	8.5 (7.8,9.2)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ Percent is based on known Massachusetts county of suicide (N=576); total rate is based on total number of suicides (N=588).

⁴ Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

HOMICIDE AGE-ADJUSTED RATES

Table 7. Homicides by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	162	80.2	5.1	5.0 (4.2,5.7)
Female	40	19.8	1.2	1.1 (0.8,1.5)
Race/Ethnicity				
White, non-Hispanic	66	32.7	1.3	1.2 (0.9,1.6)
Black, non-Hispanic	65	32.2	14.4	12.8 (9.6,16.0)
Asian, non-Hispanic	4	2.0	--	--
Hispanic	56	27.7	8.6	7.1 (5.2,9.0)
Other/mixed ²	11	5.4	--	--
Age Group				
0-14	6	3.0	0.5	NA
15-24	79	39.1	8.4	NA
25-34	42	20.8	4.8	NA
35-44	25	12.4	2.9	NA
45-54	24	11.9	2.4	NA
55-64	15	7.4	1.28	NA
65-74	6	3.0	1.3	NA
75-84	2	1.0	--	NA
85+	3	1.5	--	NA
Total	202	100.0	3.1	3.0 (2.6,3.5)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

HOMICIDE AGE-ADJUSTED RATES

Table 8. Homicides by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011 ¹				
Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	20	50.0	0.8	0.7 (0.4,1.0)
Black, non-Hispanic	5	12.5	2.1	1.8 (0.2,3.3)
Asian, non-Hispanic	2	5.0	--	--
Hispanic	12	30.0	3.6	3.2 (1.4,5.1)
Other/mixed ²	1	2.5	--	--
Total	40	100.0	1.2	1.1 (0.8,1.5)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	46	28.4	1.9	1.8 (1.3,2.3)
Black, non-Hispanic	60	37.0	27.5	24.6 (18.1,31.0)
Asian, non-Hispanic	2	1.2	--	--
Hispanic	44	27.2	13.7	10.8 (7.5,14.1)
Other/mixed ²	10	6.2	--	--
Total	162	100.0	5.1	5.0(4.2,5.7)

Table 9. Homicides by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011 ¹				
County	N	Percent ³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	4	2.1	--	--
Berkshire	1	0.5	--	--
Bristol	8	4.2	1.5	1.6 (0.5,2.6)
Dukes	1	0.5	--	--
Essex	22	11.6	2.9	3.1 (1.8,4.4)
Franklin	0	0.0	0.0	0.0
Hampden	25	13.2	5.5	5.3 (3.2,7.4)
Hampshire	0	0.0	0.0	0.0
Middlesex	20	10.6	1.3	1.2 (0.7,1.8)
Nantucket	1	0.5	--	--
Norfolk	8	4.2	1.2	1.1 (0.3,1.9)
Plymouth	14	7.4	2.8	3.1 (1.4,4.7)
Suffolk	70	37.0	9.6	7.7 (5.8,9.5)
Worcester	15	7.9	1.9	1.8 (0.9,2.8)
Unknown/Outside MA ⁴	13	--	--	--
Total known MA county	189	100.0	--	--
Total	202	--	3.1	3.0 (2.6,3.5)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ Percent is based on known Massachusetts county of homicide (N=189), total rate is based on total number of homicides (N=202).

⁴ Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.

DEATHS OF UNDETERMINED INTENT AGE-ADJUSTED RATES

Table 10. Deaths of Undetermined Intent by Demographics: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
Sex				
Male	71	62.3	2.2	2.1 (1.6,2.6)
Female	43	37.7	1.3	1.1 (0.8,1.5)
Race/Ethnicity				
White, non-Hispanic	97	85.1	1.9	1.7 (1.4,2.1)
Black, non-Hispanic	5	4.4	1.1	1.2 (0.1,2.3)
Asian, non-Hispanic	4	3.5	--	--
Hispanic	5	4.4	0.8	0.7 (0.1,1.3)
Other/mixed ²	3	2.6	--	--
Age Group				
0-14	0	0.0	0.0	NA
15-24	13	11.4	1.4	NA
25-34	9	7.9	1.0	NA
35-44	19	16.7	2.2	NA
45-54	37	32.5	3.7	NA
55-64	22	19.3	2.6	NA
65-74	5	4.4	1.1	NA
75-84	6	5.3	2.0	NA
85+	2	1.8	--	NA
Unknown	1	0.9	--	NA
Total	114	100.0	1.7	1.6 (1.3,1.9)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

DEATHS OF UNDETERMINED INTENT AGE-ADJUSTED RATES

Table 11. Deaths of Undetermined Intent by Race/Ethnicity and Sex: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
Female	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	39	90.7	1.5	1.3 (0.9,1.7)
Black, non-Hispanic	0	0.0	0.0	0.0
Asian, non-Hispanic	1	2.3	--	--
Hispanic	2	4.7	--	--
Other/mixed ²	1	2.3	--	--
Total	43	100.0	1.3	1.1 (0.8,1.5)
Male	N	Percent	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95%CI)
White, non-Hispanic	58	81.7	2.3	2.2 (1.6,2.8)
Black, non-Hispanic	5	7.0	2.3	2.9 (0.0,5.9)
Asian, non-Hispanic	3	4.2	--	--
Hispanic	3	4.2	--	--
Other/mixed ²	2	2.8	--	--
Total	71	100.0	2.2	2.1 (1.6,2.6)

Table 12. Deaths of Undetermined Intent by County: Number, Percent, Crude Rate, and Age-adjusted Rate, MA 2011¹				
County	N	Percent³	Crude Rate per 100,000	Age-adjusted Rate per 100,000 (95% CI)
Barnstable	7	7.6	3.2	3.6 (0.7,6.5)
Berkshire	2	2.2	--	--
Bristol	8	8.7	1.5	1.2 (0.4,2.1)
Dukes	0	0.0	0.0	0.0
Essex	8	8.7	1.1	1.1 (0.3,1.8)
Franklin	2	2.2	--	--
Hampden	7	7.6	1.5	1.3 (0.3,2.2)
Hampshire	3	3.3	--	--
Middlesex	19	20.7	1.2	1.1 (0.6,1.7)
Nantucket	1	1.1	--	--
Norfolk	3	3.3	--	--
Plymouth	10	10.9	2.0	1.5 (0.5,2.4)
Suffolk	9	9.8	1.2	1.2 (0.4,2.0)
Worcester	13	14.1	1.6	1.7 (0.8,2.7)
Unknown/Outside MA ⁴	22	--	--	--
Total known MA county	92	100.0	--	--
Total	114	--	1.7	1.6 (1.3,1.9)

¹ See Technical Notes in Appendix A for calculating crude and age adjusted rates. Rates were not calculated for counts less than five and are considered unstable for counts less than 20.

² Rates for other/mixed race were not calculated due to lack of denominator information.

³ Percent is based on known Massachusetts county of undetermined intent death (N= 92); total rate is based on total number of undetermined intent deaths (N=114).

⁴ Percent, crude rate, and age-adjusted rate were not calculated on unknown county nor injuries from outside Massachusetts.



Violent Deaths in Massachusetts: Surveillance Update, 2011
Massachusetts Department of Public Health